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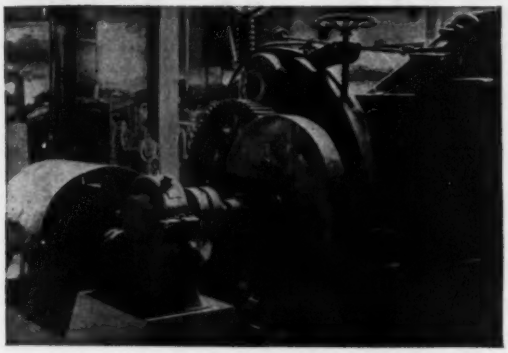

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FIFTY-SECOND YEAR

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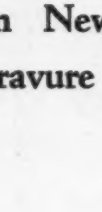

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DEVELOPMENTS IN PULP AND PAPER MANUFACTURE

Industry Has Expanded Coincident with Increase of the Country's Population and In Doing So Has Benefited by the Inventions and Discoveries Made in Other Industries as Well as Those Originated for Specific Applications to Pulp and Paper Making—Many Men With Mechanical Genius Have Contributed to Present Developments Which Have Brought Some Marked Changes.

By W. G. MacNaughton, Secretary, Technical Association of the Pulp and Paper Industry

Particularly in recent years it has been charged that there has been little real development in papermaking and that the industry has not advanced equally with others. According to one observer who is perhaps too close to the industry for a proper perspective, paper manufacturers have the mental attitude attributed to the Chinese of so greatly reverencing his ancestors that it would not be proper to try to improve on what his father had done; that in consequence the machinery and processes are not essentially different from those used for the last hundred years. It is, however, only by extending the view and taking a somewhat broad survey that one can estimate the progress that has been made. Those familiar with the pulp and paper industry during the past twenty to thirty years have seen marked changes, not only in its distribution into regions formerly regarded as inaccessible but also in the raw material and products of the older mills, as well as very marked development in the mechanical operation and control of the processes. The industry has expanded coincident with the increase of the country's population and in doing so it has benefited by the inventions and discoveries made in other industries, as well as by those originated for specific application to pulp and paper making. In this article some of those which have contributed most largely to the present development of the paper industry will be touched upon.

An industry in its growth may be likened to a stream cutting a new channel, when, in its travel, it meets an obstruction, its advance is held up until the accumulated forces break the barrier and it again moves forward with accelerated speed. In the paper industry the same phenomenon can be observed when its history is analyzed.

Wood as a Papermaking Material

Until about fifty years ago there had always been a shortage of raw material for papermaking. R. S. Kellogg says in his book on Pulpwood and Wood Pulp (soon to be published) that not until the use of wood as a source of paper was discovered had there been enough paper in the world. Rags and straw were the only materials known, together with what used paper could be collected for remanufacture. The first great advance in modern papermaking was therefore the discovery of wood as a papermaking material. Its use was at first confined to the soft hardwoods, such as aspen and basswood, which were ground with water to a pulp, which could be used in making news print in place of the bleached straw pulp employed.

Between 1875 and 1880 the sulphite process for the production of chemical wood fiber from spruce came into commercial use, giving a material that replaced rags in providing the necessary long fiber to insure the proper strength of paper for printing and wrapping purposes. The making of wood fiber paper also brought about a new meaning to manila paper, which is now understood to be entirely of wood pulp colored to resemble that of manila hemp, but which formerly was made from jute butts or manila fiber.

With the discovery of the sulphate process for chemical wood pulp, which became commercial in more recent years, its product has in turn been a very important competitor of sulphite in making wrapping and bag papers on account of its higher strength in proportion to its weight and its superior folding endurance. Both sulphite and sulphate papers have entirely displaced the brown wrapping paper made from straw which was commonly used thirty and more years ago.

Sulphite pulp, when bleached, has almost entirely displaced rags in the manufacture of book paper and has been a very strong competitor of the same material for the production of writing papers, especially those for general commercial purposes.

Although experiments have been carried on with practically every known vegetable material that is obtainable in any abundance and which in some instances reached the commercial stage, scarcely any of them have survived. In recent years materials which either did not get beyond the experimental stage or had but a bare beginning commercially, are corn stalks, bagasse, peat, flax straw and cotton stalks. The case of cotton linters is an exception in that the production of linter pulp has steadily increased during the last few years. In papermaking it competes with or supplements cotton rags in the manufacture of fine printing and writing papers. It is also used in the production of artificial silk. In Cuba and Hawaii sugarcane refuse or bagasse is to some extent made into a coarse paper, used as a mulch on the sugar plantations and to retard the growth of the weeds. The only successful development in this country is in making a thick, loosely compacted board of the disintegrated cane, which has been slightly digested. A similar product is made from flax straw treated in a somewhat similar manner. Both of these products are used chiefly for heat insulation purposes.

During the present year a pulp mill was started in Florida to make paper from saw grass, and experimental work of flax straw has been continued by the Forest Products Laboratory to determine if high-grade paper can be made from it at a reasonable cost. Cereal straw is now almost entirely confined as a papermaking material to the production of strawboard, such as that used for the corrugated center of corrugated fiber container board.

It is the general belief that until the value of pulpwood has considerably increased, other materials produced in annual crops, such as those named, will not be largely used commercially, although it is known that paper of many grades can be made from them.

Wood Pulp

In the processes for making wood pulp very considerable advance has been made, particularly in the last decade. It must be remem-

bered that it is not much more than thirty years since wood pulp became a material factor in papermaking, so that the progress made is proportionately great.

Preparation of the Wood

The first step in the use of wood is the removal of the bark, and it was long the practice to do this entirely by manual labor, using draw shaves. It was also considered necessary to bore out the knots. The hand barker, with its revolving disk to shave off the bark, was an early invention (about 1890), but it was not until about 1910 that a knife barker came into use that would remove the bark, almost entirely mechanical in operation, both as to turning the block and holding it against the disk. Just as the knife barker of continuous operation was perfected the increasing value of the wood lost in the process became appreciated. The result was that knife barkers have been almost entirely displaced by barking drums, or similar apparatus, by which the larger part of the bark is removed by tumbling with water, and the knife barkers used only to clean the blocks of the last traces which they may carry. The intermittent type of barking drum, although now little used, undoubtedly paved the way for the change to the wet barking system which at the present time is used almost exclusively. Although it was long believed that to get clean pulp and clean paper it was necessary to shave off not only the bark, but also the outer layer of the wood and to remove the knots, at the present time some of the mills making the highest grades of book and writing paper bark the wood entirely in drums or in general by wet barking methods. With the wet barking system and the greater economy of operation during the summer, it has become the very general practice to confine it to that season and to remove the bark before the wood goes into storage as a supply for the rest of the year. The final cleaning is then done just before the wood is manufactured into pulp. A difficulty attendant on wet barking was the disposal or the profitable utilization of the barking refuse. This has been largely solved through the investigation carried on by the Waste Committee of the Technical Association of the Pulp and Paper Industry in co-operation with the Forest Products Laboratory. It has been shown that if the moisture in the bark is reduced by pressure to 50 per cent or less, which is an economic possibility with presses developed for the purpose, the product can be profitably used for steam production without the addition of coal or other dry fuel.

For the further treatment of wood for chemical pulp the early practice was to bore out the knots and to saw the sticks into disks, 1¼ inches long, which were then packed into the digesters. A special gang saw was invented to cut the disks, but it was soon found to be an extremely expensive process, especially on account of the high production of sawdust. The practice was early discarded for the chipping operation for which the present type of chipper was designed. For the further conservation of wood, bandsaws of thin section are used to some extent by the most progressive mills, although in general the type still used is the circular saw.

Mechanical Pulp

The outstanding features in the development of groundwood manufacture have been the increase in the size of the grinding units, and also the improved efficiency of the consumption of power for grinding. As late as 1890, in describing a new installation, it was emphasized that the mill was equipped with grinders of the largest size and highest production, eight of which were to make twenty tons of pulp per day. There is no doubt but what this was advanced practice at that time, but we can compare this with the modern automatic grinder driven by a 1,500-horsepower synchronous motor making more in the same time than the eight grinders described. In 1912 Thickens and McNaughton conducted experimental work in the Forest Products Laboratory on the factors that influence quality and production in the grinding of mechanical pulp, and their results represent the beginning of our exact knowledge of the subject. At that time is was shown how the character of the stone, the grinding pressure and the kind of surface, as well as its peripheral speed, influence the quality and also the quantity of pulp produced. Since then considerable progress has been made, particularly in the development of the freeness tester to control the quality of the product. Prior to its development more laborious methods were more or less in use, such as the stereopticon, blue glass plate and the microscope, to aid the visual examination.

The experimental work of the Forest Products Laboratory also showed that there were many species of American trees that could be satisfactorily ground for mechanical pulp, although there were none that had the desirable qualities of spruce, with its light color, long fiber, uniform texture and freedom from resin. In addition, this species has the advantage of occurring in large stands, very little mixed with less desirable species, and in regions that are generally well supplied with water-power capable of development at reasonable cost. The result of these factors has been the steady transference and extension of the manufacture of news print paper, in which mechanical pulp is used in the largest proportion, into northeastern Canada and into western Canada and United States, with the further prospect of fairly early development in Alaska and the regions of Canada and United States containing spruce that have hitherto been regarded as inaccessible.

Sulphite Process

While the soda process antedates the other methods of preparing chemical wood pulp, the one of most importance in this country is the sulphite and it will be first considered. Since unbleached sulphite made from the same woods that are suitable for mechanical pulp is very light in color, it is very largely used for white paper, containing a large admixture of mechanical pulp, such as news print and wallpaper, as well as for white and colored wrapping paper where strength is a necessary quality. As sulphite is readily bleached it has in this form very largely replaced bleached pulp from rags and is used not only for making high grade printing and medium grades of writing paper, but also in the production of artificial silk and for other uses where cellulose enters into the composition. In the development of the sulphite process the progress has been steady.

The first great difficulty was to get digesters of a material strong enough to withstand the necessary pressure and also the action of the sulphurous acid. Bronze and Brunnger jacketed digesters were used for a time, as well as steel digesters with a lead lining, up to about 1895, but it was not until the present practice of lining the steel digester with cement and brick that a satisfactory solution to the difficulties was reached. One or two digesters were built of reinforced concrete without the steel shell and were operated for a number of years, but the practice has not been extended. The chief development in more recent years has been towards improving the efficiency of conversion of wood to pulp and getting greater economy in the chemicals and steam used.

While it is commercially possible to make sulphite pulp from spruce wood with 200 pounds of sulphur per ton of pulp, few mills in this country do so with less than 225 pounds. That there are still a great many whose sulphur consumption is 350 pounds per ton and over is evidence that there is plenty of room for development in the individual mills.

While spruce is still the chief wood used in the process, hemlock and other species low in resin are also employed to a considerable extent. In localities where jack pine is abundant and the supply of spruce has decreased, it has been found possible to use it also, although a very few years ago it was considered entirely unsuitable for the purpose on account of its fairly high resin content.

There are various modifications of the process for improving the pulp yield or for increasing the efficiency most of which have been patented. One of them which is not yet in a commercial stage consists of a two-stage digestion with the production of by-products from the final liquor.

Probably the most important modification of the direct cooking process in recent years consists in leading the relief liquor and gas with the heat they carry into a fresh digester filled with acid and chips. The result is not only to put to useful application the heat that would otherwise be lost, but also a material increase in the pulp yield from the wood digested.

For the control of the digestion the equipment generally employed includes recording thermometers and pressure gages, and in the last year or two recording and integrating steam flowmeters have been found to be of great value. A semi-automatic system of cooking, based on the steam flowmeter, has been developed, although it has not yet had a very wide application.

Although crude sulphur, at first that obtained from Sicily, has always been used in this country, the sulphite pulp industry went through a period where the Swedish practice of using pyrites was adopted to some extent. With the development of sulphur production in this country domestic sulphur took the place of the Sicilian product as well as pyrites. There are still two or three mills in the entire country that have pyrites-burning equipment, but so far as known they operate on sulphur.

For many years the sulphur burner used was the stationary flat type. A number of improvements on it were made, but at the present time the type most used is a revolving cylinder to which the sulphur is fed continuously, either in the dry or melted form. The efficiency is controlled by the use either of a recording pyrometer or a recording gas analyzer, so that either the temperature of the combustion chamber or the SO_2 content of the gas is recorded.

For the preparation of the cooking acid, limestone towers 120 feet or more in height were first used as absorption apparatus. For a number of years milk of lime systems, using dolomite lime with a high magnesia content, largely displaced the limestone towers. More recently and probably on account of the improvement in their design and construction, the towers have again become almost the standard equipment and sulphite manufacturers have to a very large extent forgotten the importance formerly placed on magnesia as a base.

The recovery of by-products and the utilization of the waste liquor have both been practically at a standstill for several years, although during the war there was a considerable recovery of sulphite turpentine or cymene. There is, however, apparently little or no profit in its production at the present time, and it is now recovered only to avoid pitch difficulties attributed to its presence. In Europe quite generally and in one or two plants ethyl alcohol is obtained by the fermentation of the sugar in the waste sulphite liquor. Although a few years ago considerable was heard of the utilization of the waste liquor in the production of core binder and tanning extract, the present production is almost entirely confined to mills so located as to be unable to dispose of the waste liquor in the usual way. Chemists here and abroad have worked on waste sulphite liquor for thirty years or more, but it still remains an unsolved research problem.

Soda Process

While caustic soda was the base first used for the production of chemical wood pulp, the soda process has been very largely modified or has been displaced by the sulphate process in which the active chemical is sodium hydrosulphide. There are two important modifications of the soda process, one in which sulphur in small quantity is added to the caustic soda cooking liquor by which the action of the alkali on the cellulose is retarded, and by which also the bleaching ability of the pulp is improved; the other in which the caustic soda is replaced by neutral sodium sulphite in whole or in part. There has also been some mention made of the use of mercury with caustic soda liquor which acts to some extent as sulphur does.

Although the soda process is largely confined to the treatment of the hardwoods for the production of short-fibered pulp to be used in book paper, it is to a small extent used for cooking soft woods or the needle-leaved species. One of the claims of the sodium sulphite modification is that highly resinous woods, such as the pines, can be treated satisfactorily to produce kraft pulp without the objection of the offensive odors common to the sulphate process. If this can be done, it is likely to again displace the sulphate process in its turn.

An interesting application of the soda process is the preparation of pulp from the chips of the chestnut oak from which the tannic acid has been extracted. During the past year it has been proposed to treat similarly the wood of western tamarack after extracting the galactan which it contains in considerable quantity. The tamarack is an abundant western species, but unextracted the wood is difficult to pulp for a high grade product. In the combination of the extraction and digestion processes may be the solution of the difficulties in treating many of the species now impossible to use.

Sulphate Process

It is by the sulphate process that the pulp for the highly important kraft paper is produced. It was invented in Europe about 1884, and although shortly afterwards introduced in America, it was not until the early part of the last decade that the process assumed much importance. The superior qualities of the paper, the great strength in proportion to its weight, and its superior tearing strength and folding endurance make it particularly suitable for bags and wrapping paper, as well as for the outside liners of container boxboard and for the production of paper twine. The pulp is of a brown color and as usually prepared is difficult to bleach to a white color. Except in a few instances no bleaching treatment is applied and the paper made is either the natural brown or in deep colors.

Although the process was at first applied to spruce, it was soon found that other species high in resin, consequently unsuitable for sulphite, were equally satisfactory. In consequence the chief development territorially has been in the southern states, where pine is one of the chief species. In connection with its extension in the south, considerable experimentation has been made towards combining the extraction of resin and turpentine from the wood and the production of pulp from the extracted chips by using this process, but it cannot yet be regarded as at the commercial stage.

The process uses sodium sulphate, which is reduced to the sulphide and causticized. Both in the vapor from the digester blow-off and in the recovery of chemicals from the black liquor, gaseous sulphur compounds are given off which to most people unaccustomed to them are highly offensive. The advance in refinement of modern civilization has brought into increasing prominence the objection to the process in the malodorous atmosphere prevailing in the vicinity of these plants. So much is this true that in certain instances sulphate mills have been forced by legal procedure to discontinue the use of the process, and in others the objections are increasing in insistence. It is common to see chimney stacks of enormous height to carry the fumes into the higher atmosphere, but about the only effect is to distribute the odors to a greater distance. Attempts have been made which have been fairly successful to absorb the offensive gases and to neutralize or destroy them, but up to the present time the application has been limited.

In the alkaline processes, both soda and sulphate, an important development has been the circulation through the digester of the externally heated cooking liquor. By this means both the use of tumbling digesters and the dilution by direct injection of steam in those of stationary type are avoided.

Recovery of Chemicals

In the alkaline processes there is much improvement still to be made in the higher recovery of the sodium, as well as other valuable chemicals which the black liquor is known to contain, but which are now lost. A process which has been advocated in Europe is to subject the partly dried material in the black liquor to dry

distillation recovering thereby acetone, alcohol, oils and other substances. But there has been no application of the process in this country. In the soda process the recovery system consists of multiple effect vacuum evaporators, rotary burners, leaching tanks and causticizers. In the sulphate, vacuum evaporators are sometimes used and sometimes disk evaporators where the hot gases of the rotary furnaces are brought into contact with the liquor carried up by the disks. Frequently a waste heat boiler is used in connection with the recovery system to utilize the heat that would otherwise go up the stack. In a so-called explosion recovery process for sulphate is seen an important modification. The liquor to be evaporated goes first to a multiple effect evaporator after which the concentrated material is atomized into a chamber previously heated to a high temperature. In the process the residual moisture is evaporated, the carbon burned and the chemical reduced to a fused condition. The heat produced serves to maintain the temperature in the combustion chamber and, in addition, to make steam in a boiler set between the furnace and the discharge stack. In the causticizing of the liquor and the utilization of the lime sludge it is the modern tendency to use equipment by which a continuous process is carried on. The sludge as it is produced is washed and dried, passing on to a rotary burner, where it is recovered as lime to be used again in causticizing further quantities of carbonate or sulphide or as agricultural lime and for other purposes.

Waste Paper

Among the pulp processes should be included the recovery of waste paper, whether it is simply defibered in water or is previously treated to remove the printer's ink. The very general method in use is digestion, either in open tanks or closed rotary boilers, with a solution of carbonate of soda, which forms a soap with the oily vehicle of the ink and which, in the subsequent washing, acts as a detergent to carry off the finely divided carbon. Very numerous have been the deinking processes proposed and hundreds of thousands of dollars have been expended on attempts to remove the ink from newspaper and to recover the pulp at a cost to compete with mechanical pulp, but so far without success. The most recent one which appears to have some merit is by treatment with a combination of a colloidal clay and dilute alkali.

Papermaking

Since the introduction of wood pulp the progression in the industry in the case of regional development has been from news to sulphite or sulphate wrapping paper and then to paper from bleached chemical pulp, such as fine wrapping, book or writing paper. In many localities this transition has been seen during the past twenty years, so that where thirty years ago straw wrapping was the chief product, book or bond paper is made today. In some cases where the power formerly applied to papermaking has become increasingly valuable it is developed electrically and distributed for lighting and industrial purposes.

In olden times papermaking was an art, dependent on the skill, the training and experience of the paper maker. To a certain limited extent it remains so today, but to a very large degree it has developed from an art to a manufacturing process in which practically all that is needed is the adjustment of the machines with operators to attend them, very largely assisted by automatic control apparatus.

News print paper used for printing metropolitan newspapers best illustrates the present status of paper manufacture. Before the discovery of the use of wood, this paper was made, as before stated, from a mixture of bleached straw pulp or waste paper mixed with a proportion of pulp from rags. The nature of the materials made careful preliminary mechanical treatment necessary before attempting to make it into paper. A beater or hollander, still seen in mills which use rags or chemical pulp to a large extent, was the most important piece of apparatus and its operator the most highly skilled artisan. So much was this so that the statement "the paper is made in the beater" is still by many considered axiomatic.

Two or three tons of paper per day represented large production on the paper machines which were 40 to 50 inches in width and operated at less than 100 feet per minute. Today the machines making paper used for the same purpose are five times the width and operate at almost ten times the speed, making nearly 100 tons of paper per day.

The largest paper machine operating at the present time is 234 inches in width, making a sheet of paper 219 or 220 inches wide, at a speed of over 800 feet per minute. The fastest machine is somewhat narrower, 164 inches in width, trimming 146 inches, and operating at over 1,000 feet per minute. In the case of both over 90 tons are made every twenty-four hours. At the present time a machine is being built that will combine the width and speed of the two and will make 100 tons and more per day.

In considering the steps that have been taken to attain these results we find that many men with mechanical genius have contributed to the present developments.

The development since wood pulp became generally used may be divided into three subjects: First, preparation of the stock or mixture of pulp for papermaking; second, the progressive development of the machine; third, the development of the prime mover and machine drive.

First. Preparation and Treatment of the Stock

When the speed of the paper machine did not exceed 500 feet per minute, which was the condition generally until fifteen years ago and to a considerable extent in more recent time, the pulp-making methods were exceedingly crude. There was little or nothing definitely known of the factors that affect either quality or production. Conditions varied greatly as to the care of the stone used as a grinder, neither its peripheral speed nor the grinding pressure were controlled, and there was little attention paid to the surface treatment of the stone, except that it should continue to reduce wood to a pulp. The pulp was passed through screens and the coarser material, which represented a considerable percentage, was wasted.

Under present conditions it is recognized that one of the chief controlling factors in the continuous operation of the paper machine at its maximum speed and the maintenance of satisfactory quality in the product is the care of the pulp produced on the grinders, together with having it in a uniform liquid suspension. To achieve satisfactory results the stones are carefully chosen as to uniformity of grit, the grinding pressure is controlled at the desired point and uniform peripheral speed of the stone is secured, either by supplying the power through a synchronous motor or, if from water wheels, by speed governors.

One of the important factors in the operation of the paper machine, as stated, is a uniform density of the pulp suspension. For this purpose automatic apparatus of several different types have been invented and extensively used for controlling this condition. The quality is watched carefully, largely with the assistance of an instrument which measures the freeness or the degree of water retention. This is largely a test for uniform fineness.

Although in former times the hollander, designed for the mechanical preparation of rags, was used on mechanical pulp, it has been found that it was a mistaken idea. Under modern practice the screened mechanical pulp is simply mixed with the proper proportion of sulphite, the longer fibered chemical wood pulp, and, with its consistency controlled, the mixture passes directly to the paper machine without further treatment.

The old practice was long retained and still is seen in the less up-to-date plants of adding clay or other loading material to make up for the deficiencies of the pulp, and also size, which was supposed to improve the printing quality. Under present practice sometimes a slight trace of blue dyestuff is used to counteract the yellowish shade of the wood pulp and make the paper appear whiter. Usually, also, a small quantity of sulphate of alumina is added to promote coagulation of the more finely ground material and prevent its loss in the effluent. In several instances news print has been

made of nothing but mechanical pulp that had been carefully prepared. The use of hollanders and jordan refiners in making news print is an instance of the persistence of established custom. This is well demonstrated by the success of plants which do not employ them.

The Paper Machine

Equally as great changes are to be seen in the paper machine itself. At 500 feet per minute or less the wire was about 30 feet long, operating on the level, with slices about 6 inches high, set forward of the breast roll, and the machine was equipped with about eighteen drying cylinders, 36 inches in diameter, by which to dry the paper. The wire was already provided with suction boxes to remove more of the water than would drain from the sheet by gravity alone. One of the first steps towards an increase in speed was to increase the length of the wire, thereby to permit of a longer distance for draining or an equal time, considering the increase in speed, until it is now about 100 feet in length.

Instead of two presses to remove as much water as possible by pressure, leaving less to be evaporated on the driers, one or two additional presses were added, and also, the bottom couch roll was converted into a revolving suction couch, thereby assisting in the removal of water without increasing the frictional resistance of the wire. The top couch was in consequence made unnecessary.

At the same time the number and size of the drying cylinders were increased until in modern machines there are forty or more driers each 72 inches in diameter.

To compensate for the greater size and weight of the moving parts made necessary by their vastly increased length, such as the table rolls, press rolls and drying cylinders, ball bearings are customary, and in consequence the power required for machine operation, in proportion to the quantity of product, has not increased.

When the speed exceeded 550 feet per minute it was found difficult to secure an even formation of the sheet, due, it was supposed, to the wire traveling faster than the liquid suspension of pulp flowing on it. It was found possible to correct this condition by elevating the breast roll above the level of the couch roll at a height to some extent proportional to the speed of travel. While this patented system of operation without doubt had a very definite influence in making possible the present speed of operation, it has been found that with a level wire a good formation can be secured by delivery of the pulp suspension to the traveling wire at a discharge velocity equal to the speed. This is done by maintaining the head in the flow box at the desired point by means of slices sometimes 48 inches high, and placing the slice directly over the breast roll to remove the weight from the wire.

When speeds reached 700 feet per minute it was difficult to secure operators whose reaction time enabled them to pass the paper between the sections as is necessary when starting the machine or after a break. To obviate this difficulty two different systems are used, either alone or in combination. One is an ingenious application of air under pressure at the delivery point of each section so that by operating a valve the paper web is blown from one section to the next until finally it is delivered to the reel, where it is wound up. The other, which is applied to the drying cylinders only, consists of a system of light ropes in contact, which carry the paper through the drier stack when once it is delivered to it at the beginning. These systems were inventions that have contributed greatly to the successful operation of paper machines at their present speeds.

Another important factor mechanically is the suction couch roll mentioned, which not only acts to draw water from the sheet but obviates much trouble caused by the top couch roll which was done away with; also, the automatic drum reel, without which it would be almost a practical impossibility to wind the paper made at its present speed.

The Prime Mover and Machine Drive

In the progressive increase of the operating speed there have been many changes, both in the form of prime mover chosen and also in the arrangement of the machine drive.

It must be remembered that a paper machine is composed of a number of sections. In a modern machine there is the wire with the breast roll, table rolls and couch; the first, second, third and fourth presses, each separately driven; the stack of drying cylinders sometimes driven in two sections, and the calender stack, making a maximum of eight sections. Each section, from the calenders to the wire, is traveling at a slightly greater speed than the one preceding it. This is done in order to keep the paper under slight tension as it is being made, to prevent the development of wrinkles.

The result is that while the sections are operating at different speeds they must be uniform in their relation to each other and to be so devised that not only may the speed of the entire machine be increased or decreased without disturbing their relation, but that the speeds of the individual sections may be independently capable of adjustment.

A direct drive from the water wheel was doubtless first used and a straight line drive on the paper machine. The sections were belted together by straight-faced pulleys and any adjustment in relative speed obtained by lagging the pulleys. We will first consider the development of the prime mover and afterwards return to the drive.

From the shaft connection with the water wheel the first change was doubtless to a constant speed engine of the non-condensing type, the exhaust steam being distributed to the drying cylinders to dry the paper. Where other grades than news print were made in a number of weights equipment capable of a wide range in machine speeds was necessary. Such a range was achieved by the use of special speed changing apparatus, such as two cone pulleys or two expansible pulleys belted together. In other cases and more recently a variable speed engine or a direct current variable speed electric motor was used to drive the whole of the paper machine as a unit, with a mechanical arrangement to secure the necessary adjustment to the speed of the sections.

The bleeder turbine, on account of its higher efficiency as a power producer, was the next step in advance for driving the paper machine. It was usually connected with the shaft by means of a rope drive and is still highly regarded by engineers, although it is being displaced in most of the newer installations by the sectional electric motor drive. To a certain extent this is rather a displacement of the rope or belt drive and the individual section speed adjustment by individual motors for each section.

The turbine, with individual motors for driving the sections, is usually of the bleeder type operated as indicated, driving an electric generator which supplies current for the sectional motors and frequently for motors driving other machinery.

In the development of the machine drive, while it is true that without it a speed of 1,000 feet per minute was attained, the sectional motor drive represents the most advanced step in the application of power to the paper machine and all machines designed to operate at this or greater speeds are now so equipped. Prior to its use the usual system was the Marshall train, consisting of a main shaft connected by cone pulleys through friction clutches, pinion and core gear, delivering the power to the individual sections of the paper machine. The adjustment in speed of the sections is obtained by shifting the belts on the cone pulleys.

While the machine is operating so that the speed of the paper is much above 750 feet per minute, a slight variation in the speed, either of the prime mover, main shaft or individual sections, militates against its satisfactory operation. In consequence it was soon found that for each section, direct connected motors equipped with automatic speed control was the best known system. For variation in machine speed direct-current motors are used, equipped with one of three systems for automatically controlling the relative speeds of the sections or varying them at will.

Since steam enters so largely into the manufacturing costs of papermaking, requiring as it does under the best conditions about

three pounds of steam to dry a pound of paper depending on the moisture it contains when it leaves the presses, some important developments have been made in the production of steam by electricity, its distribution and use, as well as the recovery of heat from the hot moist air emanating from the paper machine. It is now recognized that the building or machine room is part of the machine, its design, construction and system of ventilation having a definite bearing on the cost and quality of the paper made.

Beating

In the finer grades of paper where the quality depends not only on the character of the stock used but also its preliminary mechanical treatment, as well as in the subsequent processes to which the paper is subjected, some important developments have been made. To determine the suitability of the fiber for a particular use it is customary to test it experimentally for its ability to stand the beating operation, by the use of a ball mill or laboratory beater. Hand sheets are made and tested so that in the mill the proper degree of treatment may be given.

For the mechanical treatment there have been many different designs of beaters, both in the form of the tub and in the arrangement of the beater roll flybars, as well as the material of which they are made. In the design of the beater tub the tendency has been towards getting a high speed of circulation with greatly increased densities. One type emphasizes its ability of circulating stock at 12 per cent consistency at a speed of 75 feet per minute. In the ordinary old form of hollander it is usual to find the density at from 3 to 4 per cent with a lower speed of circulation.

For fine white papers that require considerable treatment in preparation, without discoloration of the stock, it is now customary to line the tub with glazed tile or copper and to make the roll bars and bedplate of manganese bronze or manganese steel.

While the beater is essentially in the original form of a hundred or more years ago, little is definitely known of its action. Since 1908, when Clayton Beadle published his *Theory and Practice of Beating*, little had been developed on the subject until the present year, when Sigurd Smith's work on *The Action of the Beater* was translated into English and published by the British Technical Section. In it Smith develops his theory of fibrage as the essential factor of beating, based on a study of it in practical operation. He divides the beating action into two factors, the first of which consists in the shortening of the fiber, and the other, of wet beating or what is commonly known as hydration.

Sizing and Drying

In papers whose use requires that it be water-resistant the sizing agent used is rosin soap, which is mixed with the pulp and the rosin precipitated on the fiber with sulphate of alumina. It has been found that a materially greater efficiency is obtained with a rosin size higher in free rosin if the size is in the form of a colloidal emulsion. The developments resulting from the study of the sizing process have been very marked during recent years, although paper chemists recognize that much is still to be done.

In drying fine writing papers the usual practice has been to hang the sheets, after tub sizing, in drylofts, where they are left for several days, it being thought necessary that a long time was needed in order that the quality might not be injured. Recently it has been found possible, by proper control of the humidity and the temperature in the drylofts, to dry such papers in twenty minutes where formerly it required a week or more. That the quality has not been adversely affected was shown by an experienced papermaker who was wedded to the old system, who was unable to differentiate between two lots of paper dried under the two methods. As in other developments in papermaking, however, it will probably be a number of years before such practice becomes general.

Paper Testing

No greater development has been made in the science of paper manufacture than in the methods of paper testing. Although there is still much to be done, there are now fairly well-established standards for testing paper, as well as instruments for the purpose. Some of the instruments and methods have been applied from European practice, but a number, such as the Mullen bursting strength tester, the Elmendorf instrument for the measurement of tearing resistance, the Ives tint photometer for color analysis, Ingersoll glarimeter, and several others, have been developed in this country.

Board

Two extremely important papermaking developments in recent years have been the paper board for shipping cases and wallboard for house interior wall finish in place of lath and plaster. That half or more of the tonnage of paper made in this country falls into these classes is an indication of their importance. For the container board is used most of the coarse waste paper collected and a large part of the strawboard produced in the country. Wallboard is also made to some extent from waste paper, but for the kinds best known mechanical pulp is the chief ingredient.

In observing the modern development of papermaking, especially newsprint, the importance and magnitude of the operation and the complex character of its closely related and dependent activities may be seen. A moderate sized plant will consist of a paper mill making 400 tons of paper per day, a mechanical pulp mill of perhaps 500 tons per day, a water power development of 75,000 horsepower and a sulphite mill of 100 tons per day—in all about 500 cords of wood will be used per day, necessitating several thousand workmen and several thousand square miles of timberland owned or under lease.

For the perpetuation of its timber supply a forestry department is maintained to protect the forests and to reforest the cut-over lands, as well as a railroad department by which the area may be properly harvested and brought to the mill.

Vocational Education and Apprenticeship

An important phase of paper manufacturing that has recently come to the fore is the proper training of those engaged in the industry. About five years ago a number of the more progressive men of the industry in Canada and United States, convinced that means for vocational education were necessary, undertook the preparation of a set of textbooks covering the manufacture of pulp and paper and the elementary sciences in their relation to the industry. Under the editorship of J. N. Stephenson, who had formerly been in charge of the pulp and paper courses at the University of Maine, a set of five textbooks has been prepared. Much of the work of the preparation has been done gratuitously and over fifty thousand dollars has been contributed by the industry in the two countries. The textbooks are well on towards completion, the first three volumes having already been issued and the others being expected at an early date. There has already been a wide sale of the first volumes and their character ensures a wider distribution when completed.

Accompanying the publication of the textbooks correspondence courses have been arranged whereby they are available to anyone in the industry, and in many papermaking centers the companies have given very cordial support to the extension of vocational education.

As a corollary to vocational education plans are on foot at the present time towards the development of a system of apprenticeship in the industry and a joint committee under the chairmanship of A. P. Costigane has recently been formed, representing three of the associations which are in direct contact with the manufacturing processes.

While in former times the branch of science considered most necessary in papermaking was chemistry and in most recent years mechanical engineering, it is now realized that in pulp and paper manufacture, with its dependent and related responsibilities there is no branch of science however apparently abstruse, nor few lines of experience however specialized, that will not find application in some of the activities connected with modern paper making.

BROWN PAPER MILL CO. BUILDING MODEL PLANT

May 1, 1924, is the date on which the Brown Paper Mill Company, Inc., expects to see its new mill at Monroe, La., in actual readiness for operation. So rapidly is the work of construction on the plant progressing that, unless some unlooked for delay occurs, the work will be completed and the machinery installed by that time.

Monroe is one of those Southern cities which has experienced within a few years an almost miraculous growth. Within the past eight years, to be more specific, its population has practically tripled until today it is a thriving metropolis of 30,000. On every hand is evidence of its progressiveness. Its modern public buildings, its banks, its theatres, its lighting system and its well built streets indicate that the people of Monroe are not alone building for today but that they are reckoning with foresight on a future development that will be even more marked than that of the past few years.

Site of the Mill Property

The site chosen by the Brown Paper Mill Company for its new mill is about two miles from Monroe proper or in West Monroe, at a point which is a natural railroad center which is touched by such important railroad systems as the Missouri Pacific, Rock Island and Vicksburg. At Monroe great railroad shops were built some years ago and this has had much to do with the upbuilding of the city.

Beautiful country, fairly flat in topography, is found throughout this section and as a plant site the Brown Paper Mill Company secured 120 acres of a most desirable tract.

West Monroe is separated from Monroe by the Ouachita river and the mill site is on Jonesboro Road, a state thoroughfare and the main road of the county.

Natural Gas Prevalent

The prevalence of natural gas in this locality has also been a factor in the great growth and prosperity the section has experienced during recent years.

The 120 acres which compose the mill site and grounds was originally timber land. The first move to prepare it for mill purposes was made the first week in August of the present year when the Brown company set their own men to work to clear the ground and remove the timber. Nitro-glycerine was used for the extraction of the stumps of the larger trees.

At the present time the foundations are all in and the steel work is progressing rapidly. This is being erected by the Virginia Bridge and Iron Company of Roanoke, Va. For this part of the work more than 1,500 tons of steel is being utilized.

The Morton C. Tuttle Company of Boston are the contractors, and Mr. Tuttle predicts that by January 1, 1924, the buildings will be roofed in. The interiors will then be immediately cleaned up ready for the delivery of the machinery which is due to begin to arrive at about that time. The equipment will be installed during the months of March and April and on May 1, if the present program is not interrupted, the mill will be ready to operate.

One of the assets which the company found available in its work of adapting the land to mill purposes is a natural ditch which will drain away the waste liquor, draining it into the Ouachita river.

The mill will use natural gas for its fuel. Kirkwood burners and four 855 h. p. Badenhausen boilers will be installed in the power plant. The stack which is constructed of radial brick is 250 by 12 feet and was built by the Alphons Custodes Chimney Construction Company. The engines are 3,750 k. v. a. Bleeder type Turbo Generator with auxiliary equipment made by Westinghouse.

The sulphite mill will have included in its equipment: Four 3 ton revolving Kellogg digesters; one 12 by 45 Paulson barking drum, four 9 by 20 rotary incinerators and four disc evaporators, all The pits and diffusers have been put in by the Walsh & Weidener Boiler Company. The capacity of the mill is 60 tons per day.

Partial equipment of the beater room will include six Shartle Jordans and four No. 2 Chaflin Refiners.

Fast Paper Machine

The Fourdrinier is being built by Pusey & Jones. It is a 178 inch machine with 156 inch trim. It is equipped with 36 sixty inch driers and will be driven by a Westinghouse sectional electric drive. This machine will produce at a maximum speed of 1,000 feet per minute, with a possible daily production of over 65 tons, the fastest and widest machine of its kind in the world. The Westinghouse sectional drive equipment consists of motor generator, eight motors, gear units and control equipment.

Other Westinghouse contributions to the electrical equipment include 3,000 kw. Turbine generator, 100 kw. Turbine driven generator condenser, switchboards, 75 induction and synchronous motors ranging in size from 5 to 600 h. p.

The product of the mill will be kraft paper exclusively.

When completed the Brown Paper Mill Company, Inc., will have in its West Monroe plant a mill that will be a real asset to the locality and a distinct addition to the paper making industry. George F. Hardy of New York City is the consulting engineer.

Alaska Pulp & Paper Co. to Make Pulp Board

The Alaska Pulp and Paper Company operates the only pulp mill in Alaska, located at Speel River, nine hundred miles north of Seattle and 40 miles south of Juneau, the capital of the territory. The harbor is landlocked, always open to navigation and 15 miles off the regular inside passage route of all Alaskan steamers.

PLANT OF ALASKA PULP & PAPER CO.

The present unit consists of two four pocket grinders, operated by a direct connected water wheel under 1,000-foot head and has a capacity of from 30 to 40 wet tons baled pulp per day.

The natural conditions permit of a large expansion and eventually a hydro-electric installation will be made utilizing the full economical development of Tease Lake and all additional machinery will be operated electrically and all heating and drying will be done with hydro-electric energy.

The company's engineers are now working out plans to convert the present output of pulp into pulp board.

The illustration presented herewith gives a general idea of the plant.

KENORA PLANT AND ITS BIG PAPER MACHINE

Construction Work for First Unit of Mill of Backus-Brooks Co. Nearing Completion and Big Machine Built by Dominion Engineering Works, Ltd. is Expected to be in Operation in December—Company Has Already Spent $4,000,000 on Development Program That Will Eventually Total $30,000,000—Building of Sulphite Mill to be One of Undertakings of Near Future

Construction work for the first unit of the Kenora paper mill of the Backus-Brooks Company has now progressed to the point where the company expects to have the first big paper machine operating in December. This machine is a 236-inch roll high-speed Fourdrinier machine built by the Dominion Engineering Works, Ltd., of Montreal, and is equipped with the Harland patent interlock sectional electric drive manufactured by the Harland Engineering Company of Montreal.

The first unit of the machine room is being constructed of sufficient dimensions to house two paper machines of the above-mentioned size and character.

The Backus-Brooks Company has already spent more than $4,000,000 on development work and their ultimate plans call for a much greater outlay on railway, pulp and paper mill construction and hydro electric power development. In accordance with these plans, the company proposes to install from time to time the most modern equipment until the plant becomes one of the most outstanding ones in Canada. The plant when completed may produce not only news print paper, but also surplus groundwood and sulphite pulp and perhaps other kinds of wood products as well.

The space to be occupied by the future paper machine is now used for finishing room purposes and when the second machine is installed, a finishing room will be built to serve the two machines. It is also the intention to build a sulphite mill some time after the first unit is in operation, this mill to be designed to take care of the sulphite requirements of the news mill.

Description of Machine

The machine at present being built for the Kenora Mill by the Dominion Engineering Works, Ltd., Montreal, is one of the first two three-roll machines to be built in Canada, the other being for the Belgo Canadian Paper Company, Shawinigan Falls, P. Q.

It is also the first wide machine designed to run at a speed of 1,000 feet per minute, and many interesting features are incorporated. The following are the main features of the machine:

Wire 75 feet long by 234 inches wide.
Suction couch roll 36 inches diameter.
Suction press roll 34 inches diameter.
Two sets of plain press rolls.
Forty dryers 60 inch diameter.
Eight roll calender stack.
Heavy type English reel.
Two drum winder.

The Slice is of the curved nozzle type, made under the Van de Carr patent, and designed to give absolute control of the sheet on the wire. The wire is level, but is constructed so that the breast roll may be raised to give a pitch of 15 inches, if desired. The table rolls are 10 inches diameter, and have extra large S K F ball bearings. The breast roll and return wire rolls run on Hoffman self-aligning roller bearings. The suction boxes are built up of bronze sheet and sections, and are oscillating. The oscillating mechanism is extremely simple, the boxes being hung from, and oscillated by, laminated bronze springs, thus eliminating all pin joints.

The suction couch roll is 36 inches diameter, and the shell is over 25 feet long of contrifugally cast bronze. The bearings are of the chain roller type, self-aligning and are the largest roller bearings yet made. The suction press roll bearings are of the trunnion type on large Hoffman roller bearings. The under press rolls are 32 inches diameter, rubber covered, and all the top press rolls are of granite. These rolls, together with the suction couch roll and suction press roll, are the largest rolls of their kind on any machine. In connection with the suction press roll, it might be mentioned that there are nearly 400,000 holes 5-32 inch diameter drilled in it. The bearings for the press roll are all self-aligning and water cooled, those for the top roll being collar oiling and the under roll ring oiling. The wet felt carrying rolls are of steel pipe rubber covered and are mounted on S K F ball bearings.

Heavy Dryer Construction

The dryer section is of very heavy construction, the framing being very rigid and of pleasing design. The dryer bearings are collar oiling, and as in the case of all bearings on a machine, exceptional care has been taken to make them leak proof and dust proof. There are four felts, two top and two bottom, with one 48 inch felt dryer for each. The felt rolls are of 15 inch diameter steel tube, and are carried on extra large S K F bearings.

The eight roll calender stack is equipped with electric lifting device for the rolls, and Warren doctors and feeds. The bottom roll bearings are of very large diameter, lined with special babbitt and are collar oiling. The intermediate roll bearings are lined with bronze and ring oiling. The English type reel is of heavy construction and designed for quick operation. The two drum winder is of the equal drum type, the drums being of forged nickel steel. The paper rolls are all carried in Hoffman roller bearings, and the slitters of the Koegel ball bearing type with hollow shafts 7⅞ inch diameter. There is also an automatic speed regulating device for the tightening drum. The machine is to be driven by the now well-known Harland sectional drive. The motors for this drive are coming from Britain, but the patented features are being built in Canada by the Dominion Engineering Works, Ltd.

Origin of Kenora Project

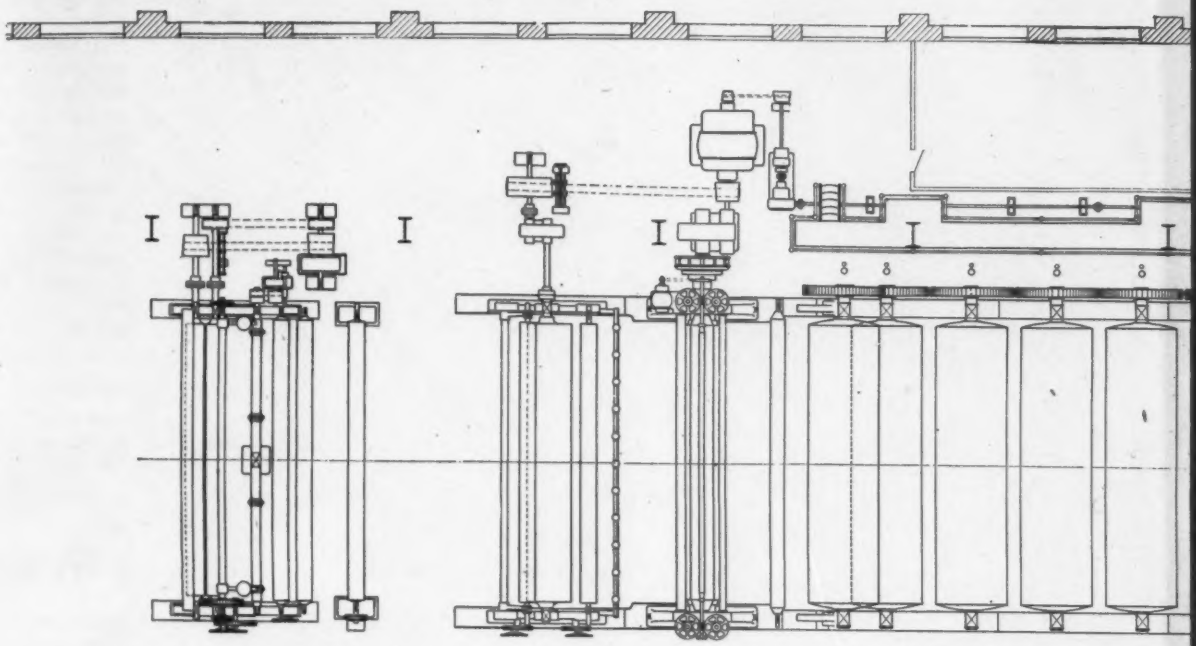
The Kenora project saw its origin with the acquiring by Mr. E. W. Backus of the English timber limits which together with former holdings gave him control of the timber in the vicinity of the Lake of the Woods. A sawmill at the Lake of the Woods will use the best part of the timber for regular sawmill purposes, the turning out of finished lumber, etc. Such wood as is suitable for pulp and paper making purposes will be used at the Kenora mill.

The first unit of the mill will have a capacity for 100 tons of news print and 80 tons of groundwood pulp. The sulphite pulp required for paper making will be shipped in until the mill is extended, when it will look after its own needs in this respect.

The program which the owners have set to carry out is to constantly add to the mill in approximately 100 ton units until the mill will have a capacity of 500 tons or more of news print a day.

Remodel Old Municipal Plant

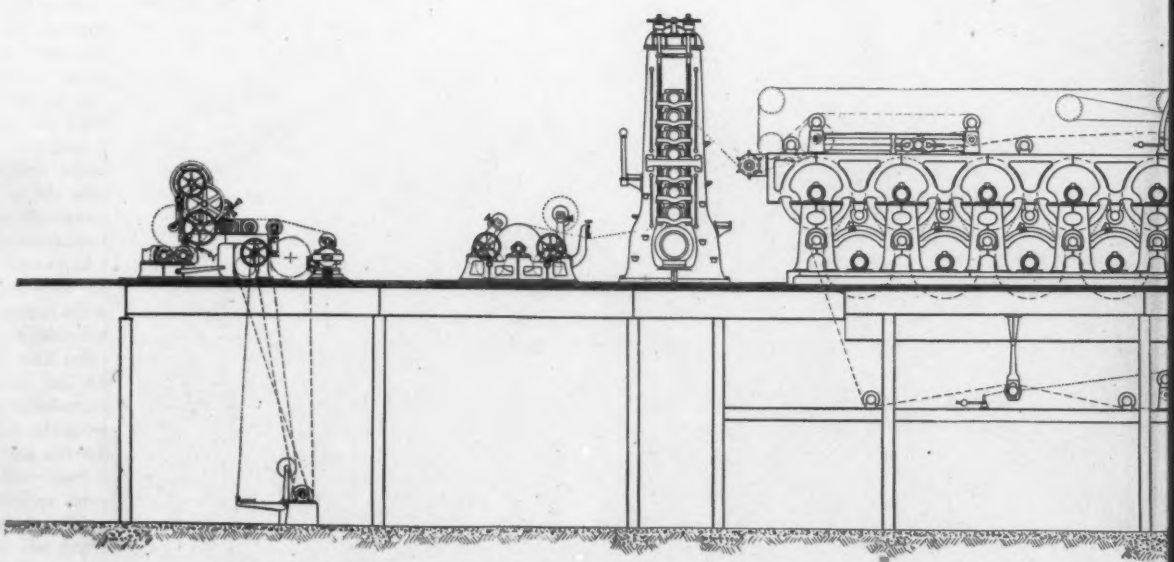
The first work done at Kenora was to take over the old Kenora municipal hydro-electric plant and to remodel this by taking out the old, inefficient horizontal units and installing modern vertical type generators. There are six of these at present and preparations are being made for the installation of ten 1,250 k.v.a. generators built by the Electric Machinery Manufacturing Company of

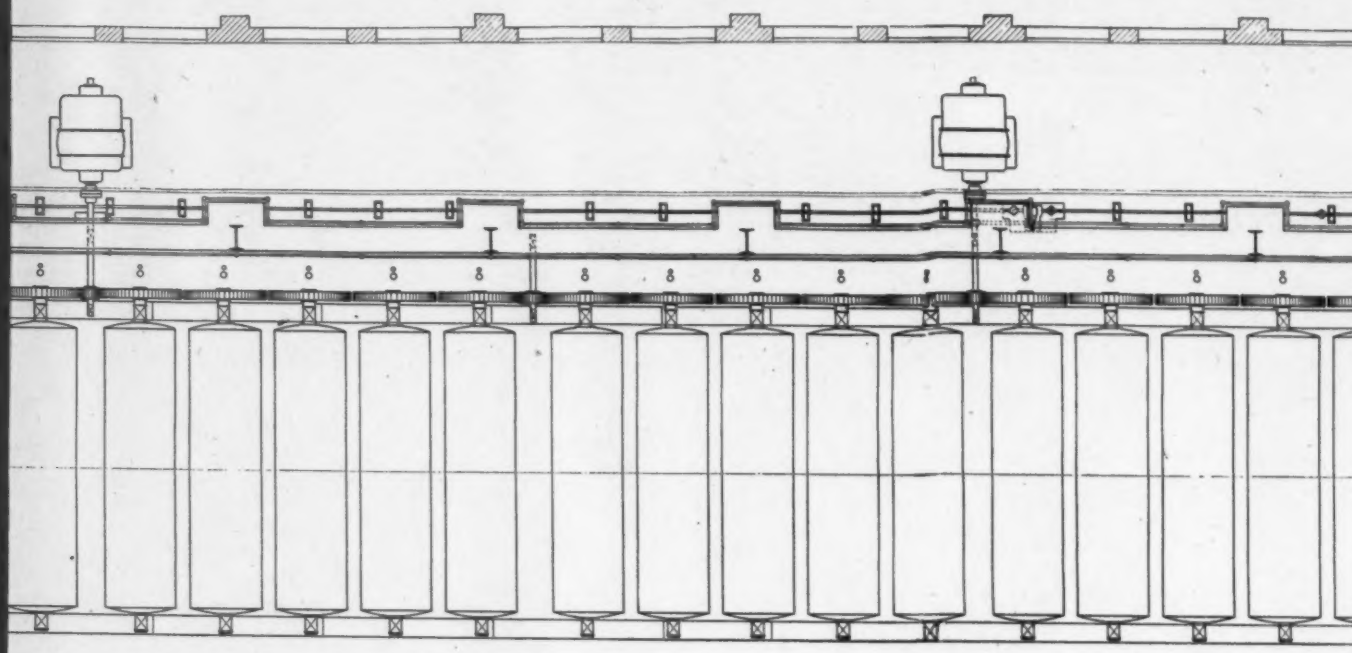


PLAN AND ELEVATION OF 234" NEWS MACHINE FOR SPEEDS

BUILT FOR

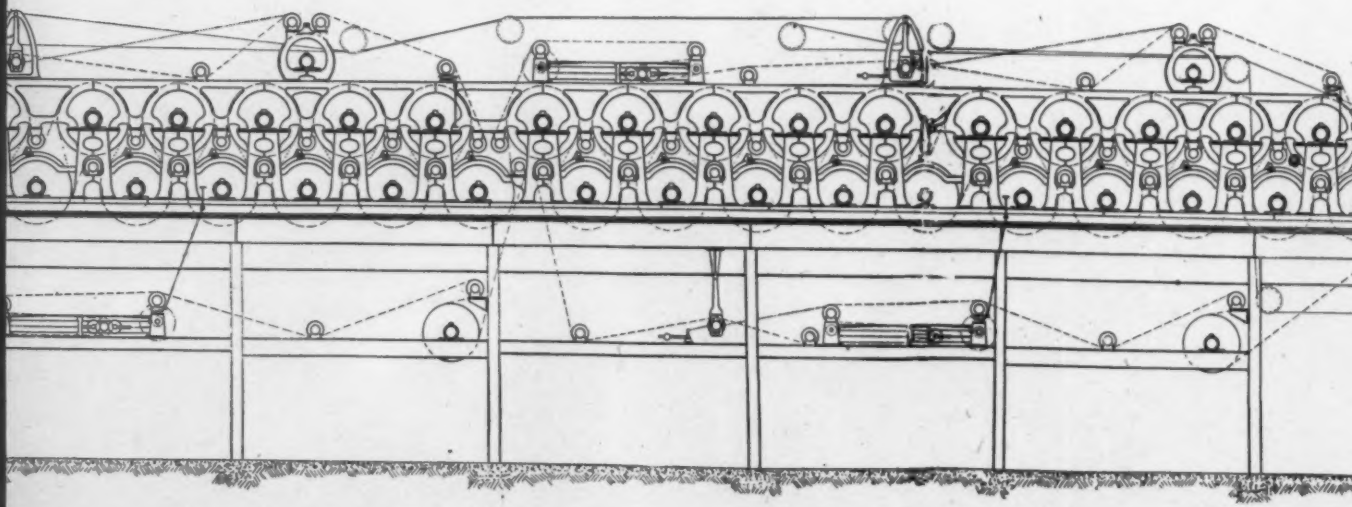
BACKUS BROOKS Co K

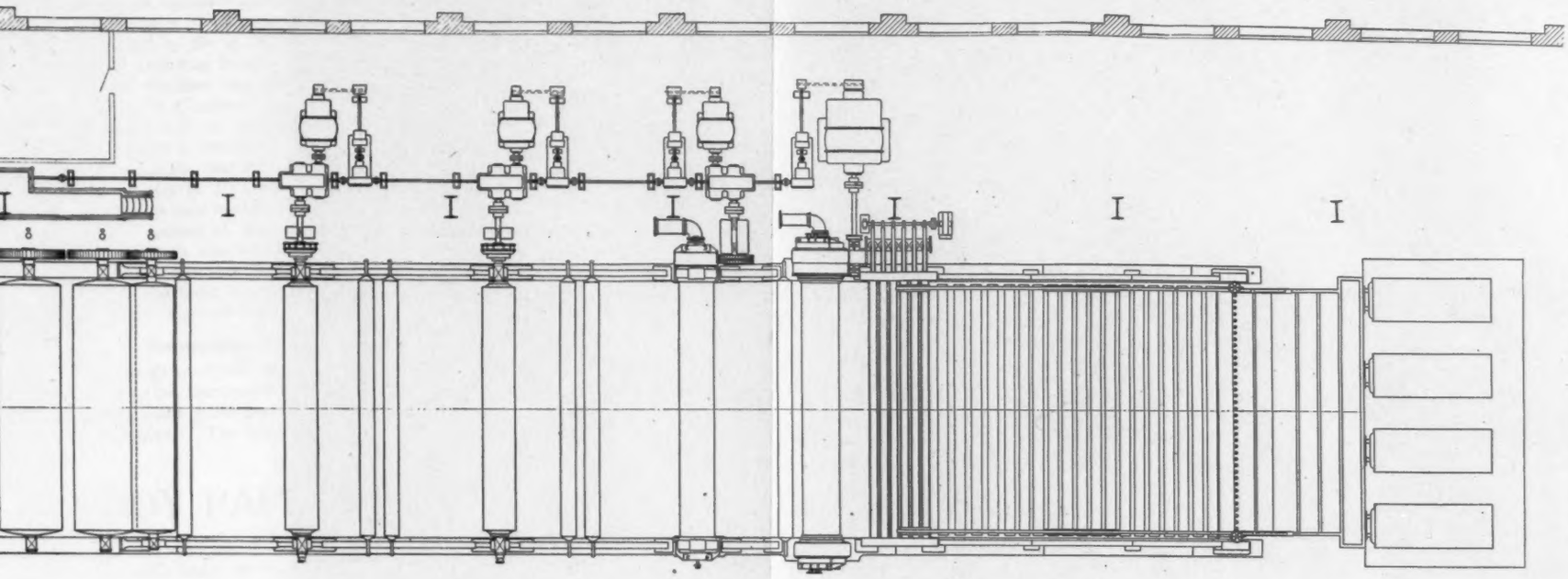




UP TO 1000 SURFACE FEET PER MINUTE

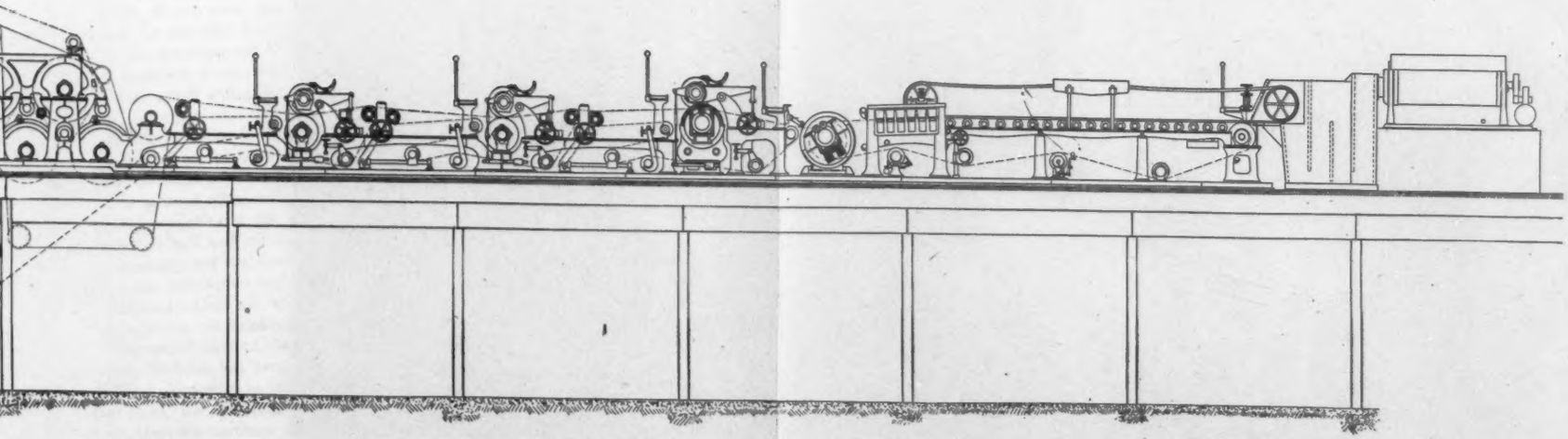
ENORA





DESIGNED AND BUILT BY

DOMINION ENGINEERING WORKS LTD. MONTREAL



Minneapolis. In the work of remodelling the power house, large excavations were made through stone embankments to permit the passage of the necessary water for the greater water power. Vertical water wheels of 1,200 h.p. at 120 r.p.m. at 22 foot head have been installed by the S. Morgan Smith Company. The plant is capable of producing between 10,000 and 12,000 h.p. The switchboard and auxiliary electrical apparatus was manufactured and installed by the Canadian General Electric Company.

The first unit of the groundwood pulp mill is of 80 tons capacity and is already in operation. The grinders are of the Waterous "Voith" magazine type and are driven by 2,800 h.p. synchronous motors operated at 225 r.p.m. 2,200 volt, 3 phase, 60 cycle. The grinder motors were manufactured by the Electric Machinery Manufacturing Company of Minneapolis.

The equipment also includes eight 40 by 94 inch wet machines made by the Waterous Engineering Works Company. The wood preparing department at present contains one drum barker built by the Canadian Ingersoll-Rand Company.

Construction Work Handled by Company

The ground wood mill also contains screens and knotters manufactured by the Sherbrooke Machinery Company and pulp pressing equipment made by the Southworth Foundry and Machine Company of Philadelphia. The small motors, switchboards and auxiliary electrical equipment was manufactured and installed by the Canadian Westinghouse Company.

The mill, when completed, will represent an ultimatum of efficiency for which a large share of credit is due Hardy S. Ferguson of New York City, who is the consulting engineer.

The construction work has been handled by the Backus-Brooks Company itself under the direction of J. T. McLellan, the Company's construction manager.

Four hundred men are engaged in the construction work and in the pulp mill at the present time and this number will be considerably increased when the paper mill starts operating.

Water Level Negotiations

The Kenora undertaking is one of the largest now proceeding in Western Canada. The Backus concern also controls the water power at the Norman Dam, situated less than two miles from Kenora. Negotiations respecting water levels on the Lake of the Woods, which will have a great bearing on the Norman Dam power, are proceeding between Canada and the United States and, as soon as a settlement is reached, Mr. Backus proposes to construct an hydro-electric power plant at Norman which will produce 18,000 h.p. The combined power from the two plants which are situated on the Winnipeg river, will be sufficient to operate the pulp and paper mills with a capacity of from 300 to 400 tons daily output.

EDDY PAPER CORPORATION MAKES IMPROVEMENTS

Since the re-organization of the Eddy Paper Corporation and its administration under the new management, many improvements and several necessary extensions have been made or are under construction at the present time all of which will greatly increase the production and the operating efficiency of the plants.

Improvements at Three Rivers

At Three Rivers, Mich., large continuous breaker beater for preparing mixed papers has been installed complete with riflers and thickeners and the process and method of handling kraft pulp has been revamped. New vapor hoods are about to be placed over the large paper machines and the Fulton Condensate System has been installed on number five machine and similar installation made on number four machine, both of these items tending toward increased efficiency in drying paper. Broke beater has been installed in machine room basement for more efficiently handling the waste and trimmings from the machine. New storage building for paper machine rolls is under construction which will increase this storage capacity 60 per cent, also new electric traveling crane will be installed for use with the present crane to facilitate handling of rolls from the machines and for shipping.

A complete white water system for mill number three is being installed which will effect noticeable economies by saving of paper stock and chemicals. Numerous other alterations are being made on paper machines for increased efficiency and production.

The efficiency of the steam plant has been increased by the installation of modern boiler room appliances including induced draft fan.

New general offices with modern appointments have been provided, making available for this purpose floor space of 7,500 square feet.

General mill and construction stores are being extended to triple the capacity and the store system is being revised and modernized for more satisfactory and economical service.

Railroad sidings are being extended to provide additional facilities for receiving and shipping material.

The major part of machinery and equipment in the Fiber Container Division has been re-located to allow process revisions and to effect economies in the routing and handling of material through the plant, the one piece box equipment in its entirety being relocated on the northern side of the main paper storehouse.

Many other improvements of importance have been made all of which will improve operating conditions and result in increased economy of manufacture.

Improvements at White Pigeon Plant

At White Pigeon, new vapor hoods are being installed over the paper machines and the Fulton Drying System has been installed on number three machine and similar system will later be installed on number two machine, all tending to increase drying efficiency of machines. Additional dryers have been placed on number three machine together with additional cylinder and additional presses have been placed on number two machine, all of which will increase the capacity of these machines. A new winder for handling larger rolls is being installed on number two machine. Equipment for rewinding the "Jumbo" or large paper rolls is also being provided for the purpose of filling small orders from stock "Jumbo" rolls.

Beating equipment is being rebuilt to a large extent and new equipment added. Several beaters have been equipped for continuous operation, thereby greatly increasing the capacity and giving more uniform preparation of stock.

A white water system for saving stock and chemicals by installing white water in both machine and beater room is being installed and considerable economies are being effected by this means.

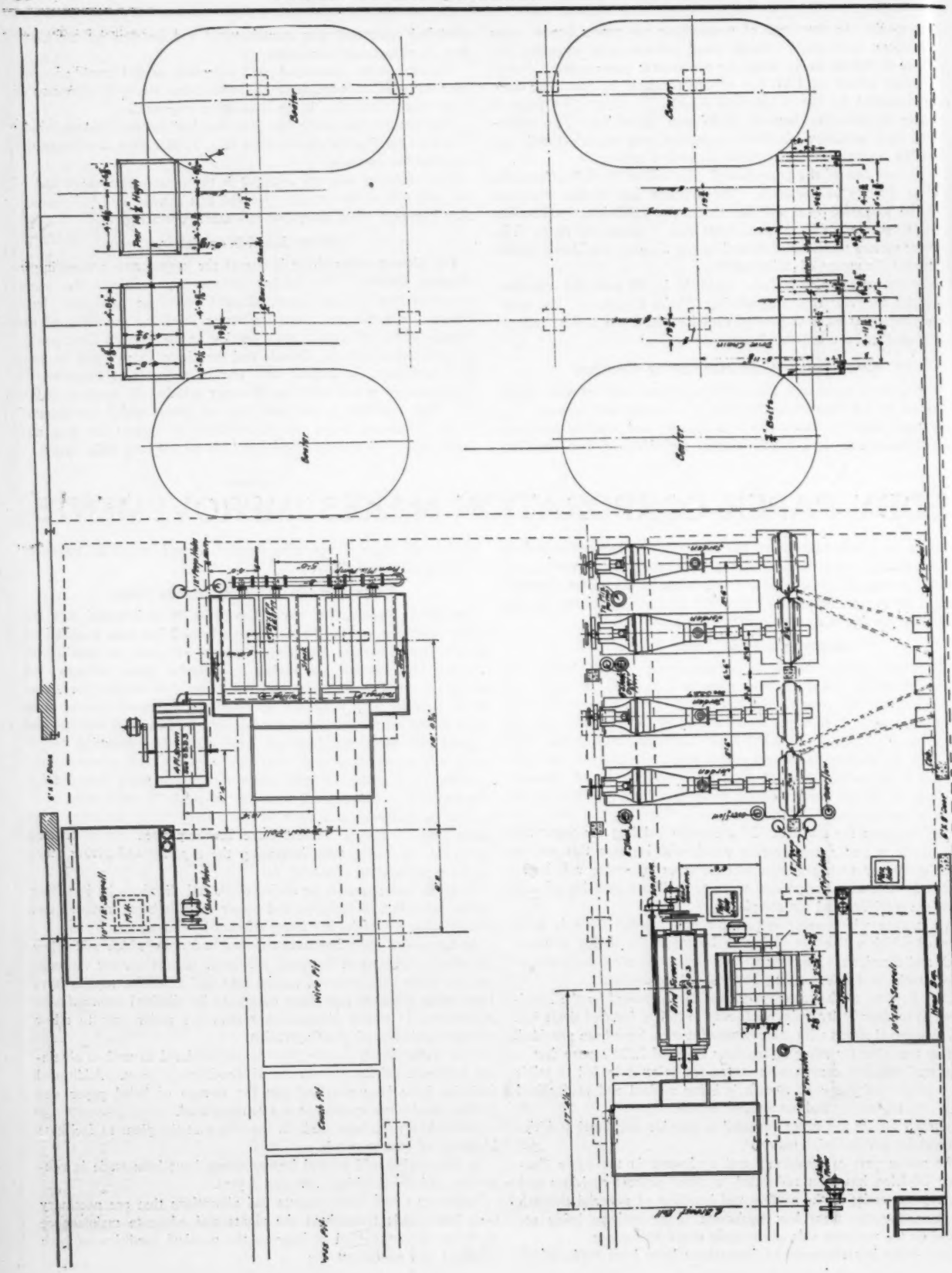
In the power plant improvements are underway which will allow the plant to operate at increased efficiency. Prime Movers throughout the plant have received special care and extensive repairs have been made allowing maximum output to be obtained economically. Alterations in power distribution system are under way to allow greater flexibility of plant operation.

New water supply for the plant is contemplated as well as obtaining increased efficiency from the Hydro-Electric plant. Additional facilities have been provided for the storage of baled paper and further stockhouse extensions are contemplated.

Alterations have been made in the offices at the plant to facilitate handling of routine work.

In the coating mill several improvements have been made in connection with the finishing room and dryers.

Numerous other improvements and alterations that are necessary have been made throughout the plants and adequate maintenance work has been provided to improve the physical condition of both buildings and equipment.



GROUND PLAN OF WET END OF MACHINE ROOM OF NEW ALEXANDER MILL

ALEXANDER MILL OF NEKOOSA-EDWARDS PAPER CO., IN CENTER

WASTELESS MILL OF NEKOOSA-EDWARDS PAPER CO.

In December, 1922, the board of directors of the Nekoosa-Edwards Paper Company voted to build a new two-machine paper-mill at Port Edwards, Wis., to be known as the "Alexander Mill," to move one of the Nekoosa machines to Port Edwards, and to build two new Yankee machines, one for Nekoosa and the other for Port Edwards. On December 15 the contract for the two new paper machines was signed with the Beloit Iron Works, Beloit, Wis., and on March 10, 1923, the contract for the mill building was signed with the Meyers Construction Company, Oshkosh, Wis.

The first paper was made July 24, 1923, on one of the new machines, a 132-inch Yankee Fourdrinier with 12-foot drier and other special features.

Paper was made on the second machine, the Columbian World's Fair machine, a 112-inch Fourdrinier, built thirty years ago by the Beloit Iron Works, on September 5, just thirty days after it was shut down at Nekoosa.

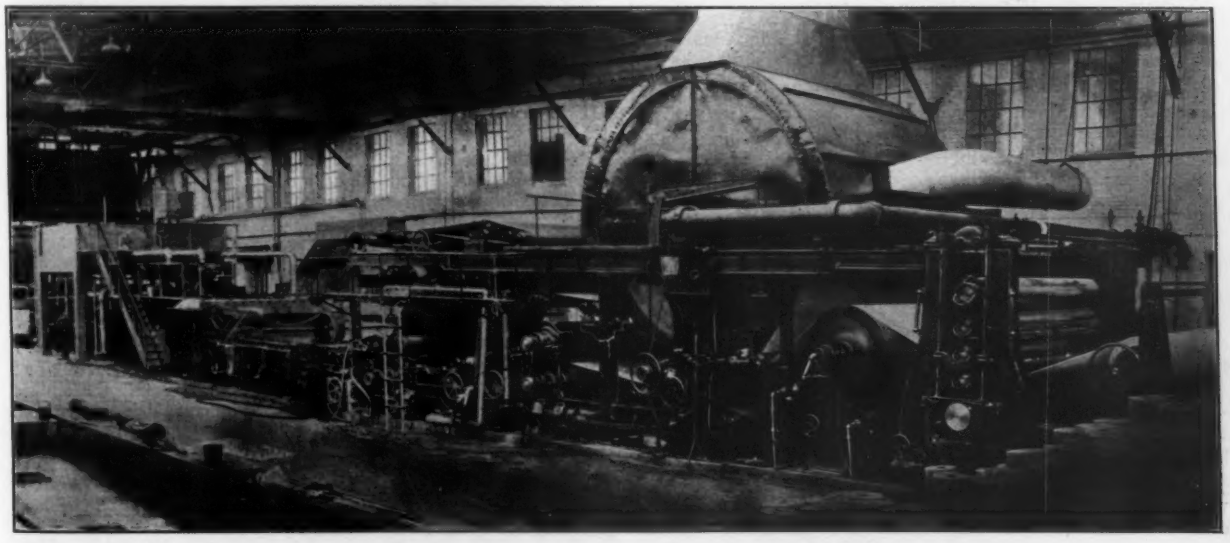
These two units now make the average total production of the Nekoosa-Edwards Paper Company's Port Edwards plant 100 tons per day, and an equal amount at Nekoosa makes a total of 200 tons of paper per day at the two plants.

The products are news print, dry and water-finish sulphite and sulphate wrappings, bleached and unbleached fine wrapping, machine-glazed sulphite and sulphate wrappings of all weights and colors.

The Nekoosa-Edwards Paper Company makes its own groundwood, sulphite and sulphate pulps and has its own bleaching plant, so it is always in a position to make the same quality of pulp for its own requirements and is not dependent upon others.

The Alexander mill is 156 by 185 feet, of concrete, steel and brick, and includes an airy and finely ventilated machine and beater room on one side, with three stories on the other side for finishing and storage. Adjoining the finishing and cutter room is a covered car shed for shipping, capable of housing eight 40-foot cars at one time.

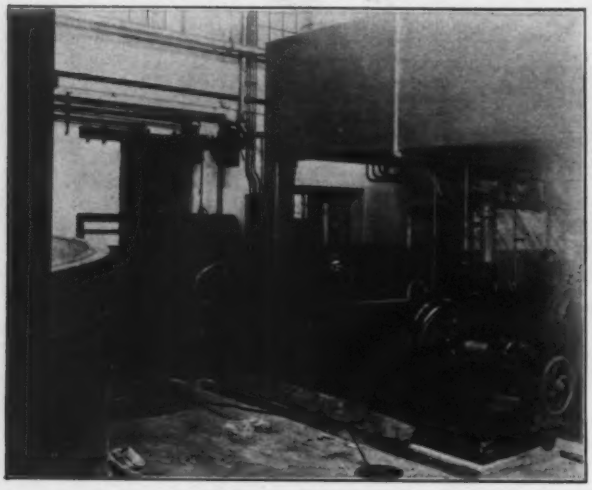
There is no connection with the sewer, making the machines the nearest to being free from waste yet designed and equipped.



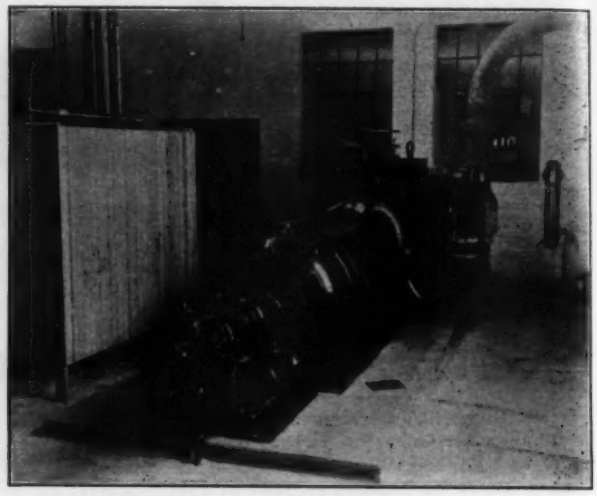
VIEW OF YANKEE MACHINE IN NEW ALEXANDER MILL

GROUND PLAN OF WET END OF MACHINE ROOM OF NEW ALEXANDER MILL

The white water at the wet end drops into the pit under the wire to which is connected a 1,000-gallon-per-minute pump, which pumps the entire volume to a mixing box over the machine jordans, where that required for make-up is used to mix with the jordaned pulp. The surplus goes into a steel tank over the beaters for use there as make-up. The overflow from this beater tank goes to an inclined screen saveall, located back of the machine wire, where the pulp is



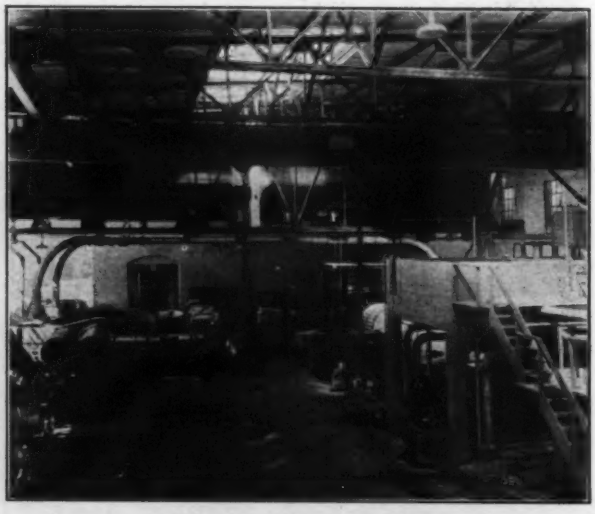
JORDAN AND MOTOR DRIVES



1,500 K.W. WESTINGHOUSE TURBINE

removed and dropped by gravity back into the machine chest. The screened water from the saveall drops by gravity to a smaller tank in the basement, where it feeds the pumps for the wire showers. The white water from the machine wire suction boxes also discharges into the same tank for shower water. It is seldom that there is any overflow from this tank, there being a float valve with

DRY END OF YANKEE MACHINE



VIEW IN BEATER ROOM

3-inch pipe supplying fresh water to the shower pump, and most of the time some fresh water is required, particularly when beaters are being furnished.

The paper made is the cleanest of all made by the Nekoosa-Edwards Paper Company, and on the average it is the nearest to the ordered weight.

Types of Equipment

The beaters are of the Niagara type, made by the Valley Iron Works, Appleton, Wis., but with beater rolls having the Youngchild filling installed by the Nekoosa-Edwards Paper Company, and with granite bedplates furnished by the Green Bay Foundry and Machine Company.

The beaters are driven by 150-horsepower G. E. electric motors, equipped with silent chain drive.

The jordans are built by the Appleton Machine Company and driven by direct connected G. E. 150-horsepower motors.

The centrifugal pumps were all made by the Dayton Dowd Company.

The vacuum pumps are all Nash Engineering Company products, furnished by Thomas H. Savery, Jr., and are direct connected to G. E. motors.

The stuff chests are all equipped with motor-driven agitators, direct connected, and were furnished by the Murray Iron Works, Wausau, Wis.

The Alexander mill is one of the showrooms of the Wisconsin paper industry, and already the Wasteless Mill has been heralded the length and breadth of the land.

A "Wasteless Mill"

The building was designed and erected under the supervision of

the NEPCO engineering department, with E. P. Gleason, managing engineer; C. F. Watson and Henry M. Ford, assistant engineers; and John Walley, construction superintendent.

The designing of machinery, as well as the system in use, were planned by B. T. McBain, director of manufacturing, and his able assistants, C. A. Wiley and O. L. Le Roux.

The "Wasteless Mill" is one of Mr. McBain's ideas of operation without the enormous waste seen in average mills and there is no patent on the layout. In this mill 100 pounds of paper will daily be made with 100 pounds of pulp.

The hood over the Yankee machine was made by Wolff & Bero, and is equipped with a Briner economizer furnished by the Ross Engineering Corporation, New York.

The screen on the Yankee machine is a No. 2 Bird screen, furnished by Thomas H. Savery, Jr., Chicago.

To drive the Yankee machine, there is a 200-horsepower Kerr variable speed turbine, the first one ever applied to such use.

The screens on the World's Fair machine are of the Wandel type of revolving screen, made by the Bird Machine Company, East Walpole, Mass.

The engine on this machine is a Chandler & Taylor variable speed twin engine of 200 horsepower.

The cutters were furnished by the Hamblet Machine Company and the layboys by the Maxson Company.

The rewinders were furnished by the Cameron Machine Company.

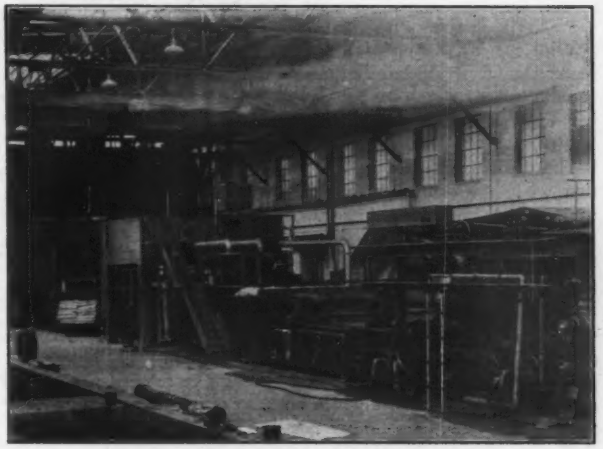
The crane in the machine room, running the entire length of the room, was furnished by H. D. Conkey & Co., Mendota, Ill.

The mill is equipped to run on decker stock in its entirety, the groundwood and sulphite being pumped in 6 per cent consistency from the groundwood and sulphite mills, with triplex pumps furnished by the Hayton Pump and Blower Company, Appleton, Wis.

The first clothing was furnished by the Lindsay Wire Company, F. C. Huyck & Sons, and the Orr Felt and Blanket Company.

The Yankee machine makes machine-glazed wrappings. It is equipped with a 50-foot wire 132 inches wide, two presses, a 12-foot drier and a 4-foot sweat drier; also, a 5-roll stack of calenders, duplex reel and 2-drum winder.

This machine trims 120 inches and is built to run 650 feet per minute on lightweight papers. It is now running 450 feet per minute on 20-pound paper, and averaged 20 tons per day in August.



WET END OF YANKEE MACHINE

The other machine in this new mill will run on water-finish wrappings from 30 to 100 pound of the various well-known NEPCO brands, the same as it made while at Nekoosa.

CRYSTAL TISSUE COMPANY ADDS MACHINE

During the past year, The Crystal Tissue Company of Middletown, Ohio, has made a number of improvements—the most important of which is the addition of a new 140 inch Black & Clawson tissue machine. This new machine is housed in the so-called New Mill of the company with another 140 inch Black & Clawson tissue machine installed about ten years ago.

B. M. Baxter of Cleveland, Ohio, was the consulting engineer in charge of building this new machine and all the necessary auxiliary equipment for it. Mr. Baxter also supervised the rebuilding of the 90 inch and 118 inch tissue machines of The Crystal Tissue Company, which was done during the last year and the installation of the following new boilers: 1 150 HP horizontal type, made by Erie City Iron Works, 2 150 HP horizontal type, made by Houston, Stanwood & Gamble, 2 360 HP Sterling type, made by D. Connelly Boiler Company.

This gives The Crystal Tissue Company a total boiler equipment of 4 horizontal type boilers, with stack draft and the two Connelly boilers with forced draft.

The new 140 inch tissue machine is of the cylinder type having one cylinder 140 inches wide with a trim of 120 inches and 6 dryers 48 inch diameter. The machine was built and designed by Black & Clawson Company of Hamilton, Ohio. It is electrically driven.

The improvements made on the 92 inch and 118 inch machines have been the means of increasing production on these particular machines, by 25 to 35 per cent. This additional production with the production from the new machine, gives The Crystal Tissue Company, a total production of approximately 50,000 lbs. of high grade tissues per day, which is divided into high grade wrapping tissue, waxing tissue, carpet tissue, and a number of special papers, which have been developed for special purposes. The company operates five machines with a trim of 60 inches, 80 inches, 100 inches and two 120 inches respectively, or a total trim of 480 inches. These machines are all of the one-cylinder type, designed to make high grade light weight tissues only, and probably represent the largest capacity in this particular type and grade of paper in the world.

During the spring of 1923, the Crystal Tissue Company added H. H. Harrison to its staff in the capacity of chemical engineer and now maintains a fully equipped chemical laboratory, for the testing of raw materials and for the analysis of paper samples submitted by customers. This chemical laboratory is at the disposal of the paper trade without any charge and it is the hope of the management that its facilities will be used frequently, not only in testing papers for certain qualities but also in developing new papers for special purposes.

Ross Auvil became general superintendent of The Crystal Tissue Company on June 1, succeeding J. M. Cathcart who resigned to accept a responsible position with a Canadian tissue mill. Mr. Auvil had been in the employ of the Crystal Tissue Company for approximately three years in the capacity of assistant superintendent and is therefore very well qualified for the additional responsibilities of his new position.

Making Pulp Wood at Bathurst

The new groundwood mill of the Bathurst Company, at Bathurst, N. B., is now in operation, producing news print from the groundwood pulp.

This marks a new stage in the development of this company, which formerly manufactured only sulphite and sulphate pulp for export to American and European markets.

ST. MAURICE LUMBER CO.'S MILL AT THREE RIVERS

New Subsidiary Plant of the International Paper Co. Said to Be the Most Thoroughly Up-to-Date News Print Mill in the World—Installation of a Seventh Grinder and a Third Digester Give Final Touch to Fine New Plant Which Is Attracting the Attention of Paper Men Everywhere—Electricity Used in Every Department of the Paper Mill.

With the installation of a seventh grinder unit and a third digester, the final touch of general efficiency and completeness was recently given to the new news print mill of The St. Maurice Lumber Company, a subsidiary of The International Paper Company located at Three Rivers, Province of Quebec.

The plant throughout is the last word in modern mill construction while the equipment is distinctive in its adaptability for the various functions required of it. Favored by nature in no ordinary way as to site and resources, the plant has further received the benefit of the most careful study and development on the part of the best engineering genius. Every detail has been worked out in the most scientific manner, every problem has been solved in the correct painstaking way and every difficulty has been surmounted satisfactorily.

As a result the St. Maurice mill possesses more than one feature of outstanding importance which tends to differentiate it from other mills constructed along similar lines.

A Model to Be Studied

It will be a model for years to come for those who are interested in mill construction of the highest type and of mill equipment laid out with perfectly harmonizing results.

Already the mill has done its share toward transforming the quaint old town of Three Rivers into the busy community which is fast developing. Venerable and staid and, pointing with pride to the fact that it is the oldest town on the St. Lawrence River. Three Rivers has, at last, been aroused to an existence of new activity. A pronounced change is being wrought all around it and of the factors working this change, the St. Maurice plant is the foremost.

As already stated, nature with lavish hand furnished the nucleus for what man has since accomplished. Just north of the juncture of the St. Lawrence and St. Maurice rivers, lies the mill. It is a location as picturesque as it is favorable to the paper-making industry. Here ground was broken for the mill in August, 1919. At the beginning of 1920 the first sulphite was produced. April 1, 1922, saw the first paper-making machine of the present equipment installed. This was followed by a second on May 13. The third came on June 15 and the fourth and last was installed on August 20 of last year.

Extensive changes in several departments were necessitated by the recently installed grinder unit and the new digester but all has been completed in the most thorough manner.

Capacity Increased to 320 More

The additional facilities for paper making increases the capacity of the mill from 275 to 320 tons in 24 hours. The new units with all the attendant improvements in plant and equipment has today placed the mill in a more commanding position than ever in the paper making world and enables it with assurance to face the future and the ever growing demands which are placed upon it.

A more ideal location for a paper mill could hardly be conceived than that occupied by the St. Maurice mill. Directly at hand are the waterways, solving in the most practical manner the handling of the logs to the mill. The Shawiningan Falls Water and Power Company supplies the electric energy. Transportation facilities are of the best. During seven months of the year the St. Lawrence is depended upon to furnish a water route to the Great Lake ports, to the Atlantic Coast and to European cities. The Canadian Pacific Railroad, with ample sidings, provides excellent shipping facilities.

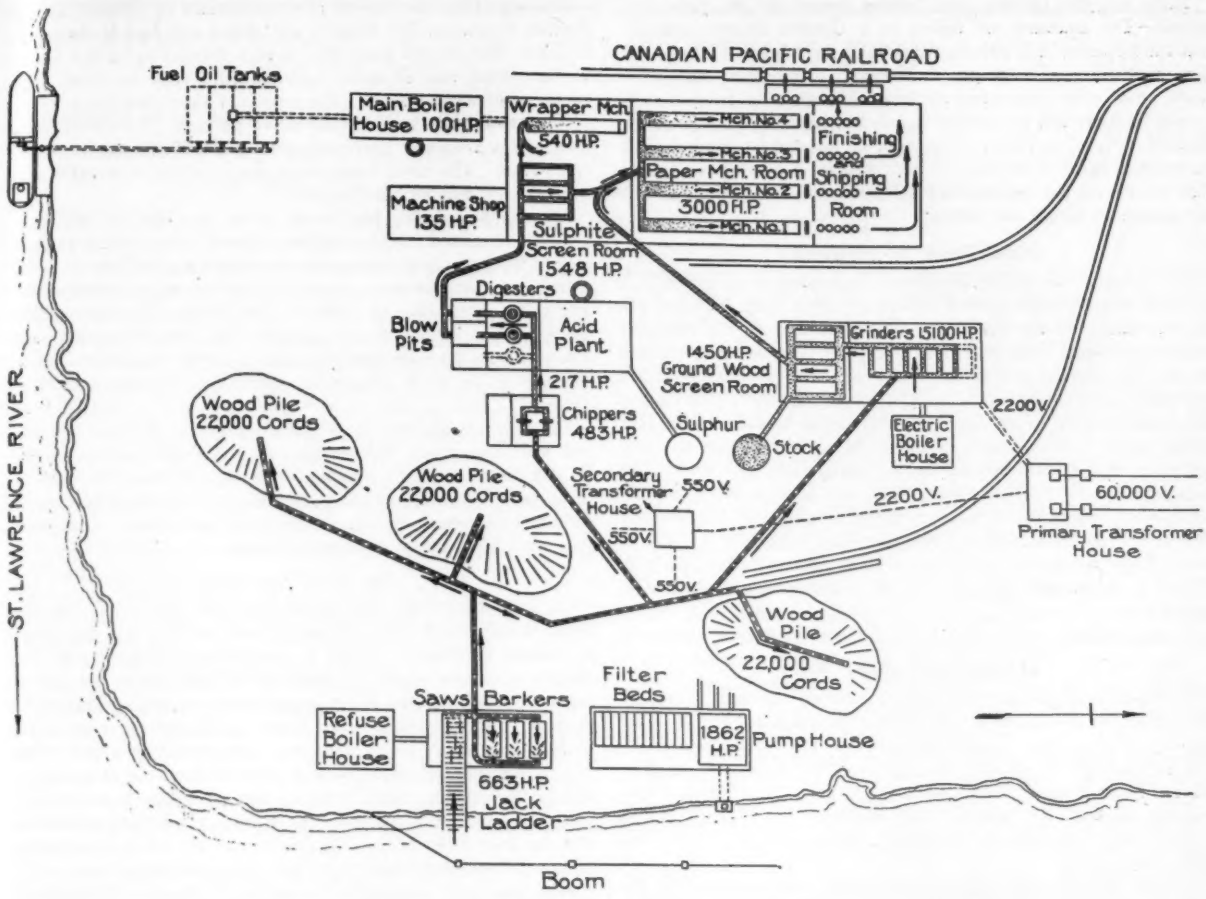
A tour of the plant is a revelation to the visitor for the arrangement of the series of mills shows that the plan has been laid out with a view to attaining the greatest possible efficiency and the elimination of unnecessary labor. To A. H. White, chief engineer of the International Paper Company, belongs a large share of the credit for the fine results his technical skill has accomplished.

Waterpower Development

The electric power development for the mill amounts to 20,000 h. p. and upwards. The power plant contains eight 450 h. p. Babcock & Wilcox water tube boilers supplied with heat by crude oil burners, and five 100 h. p. tubular boilers manufactured by the Engineering and Machine Works. Wood waste is the fuel used for the five 100 h. p. boilers and fuel oil for the eight 450 h. p. boilers. The fuel oil is stored in four large reinforced concrete tanks built underground with a capacity of 150,000 barrels.

The chimney of the boiler house is a brick stack 12 feet in diameter and 200 feet high, built by the Custodis Chimney Construction Company.

Model Mill of the St. Maurice Lumber Co., Three Rivers, Que.



DIAGRAMMATIC PLAN OF MILL AND FLOW OF MATERIALS FROM LOG BOOM IN RIVER TO LOADED FREIGHT CARS

The electric energy is delivered to the mill in three-phase, 60 cycles, and 66,000 volts; later reduced to 2,200 volts for the grinders, and 550 volts, for the 350 motors of various sizes which are scattered throughout the plant.

Without going into detail, it may be said that the St. Maurice mill is distinctive as being a 100 per cent electric paper mill for electricity is used throughout and every power application is electric.

Another Grinder Unit

In the groundwood mill, where a seventh grinder unit, has just been added, there are now fourteen large magazine grinders, manufactured by the Waterous Engine Works, giving the pulp mill a capacity of 225 tons in 24 hours. The grinders, which are of 60 inch diameter and 54 inch face, run in pairs, each pair being carried by a 2,400 h. p. motor.

Each of the grinders has two magazines, 4 feet 3 inches by 4 feet 8 inches and 16 feet high. The recent acquisition of the two new grinders also added other necessary equipment to the mill. Thus augmented, the present equipment of the mill, includes the following: One sliver screen, four Impco knotters, three rifflers, 27 feet long by 18 feet wide; five first screens of the centrifugal type and two second screens; thirty deckers, built of concrete, 40 inches in diameter with a 96 inch face. Three save-all deckers, 36 by 72 inches and one save-all complete the layout.

The wood is fed into vertical chambers that extend to the charging floor where they are kept filled from wood bins which are replenished by a conveyor system. Pulp, upon leaving the grinders, passes through inclined screens which have a large area. The slivers are left on the surface and are raked away by chain operated scrapers. The residue is later burned with the bark and sawdust. Here the deckers perform their function. They thicken the stock by removing all but about one-tenth of the water. Rotating meshed drums, partly submerged in the stock, accomplish this. The water runs into the drum and on to the ground wood white water tank while the pulp on the surface is scraped off and passes to the soft stock tank.

The Paper Machines

Four Fourdriniers, the dominating equipment of the entire plant, are the center of interest in the paper mill. They are Bagley & Sewall 164 inch machines, making a 152 inch sheet. The machines are set side by side in the machine room which is 175 feet wide by 320 feet long. On each machine there are 40 five-foot driers. Each Fourdrinier is equipped as follows: Three rotary Bird screens manufactured by the Ingersoll Rand Company; centrifugal pumps manufactured by the A. S. Cameron Steam Pump Works; one 10-plate flat screen; Fourdrinier wire 164 inches wide by 100 feet long; one breast roll 18 inches in diameter by 166 inches wide; one Millspaugh suction couch roll 30 inches in diameter; one first press with a 30 inch diameter Millspaugh suction roll at the bottom, the top roll being 26 inches in diameter; one second press with both rolls 26 inches in diameter; one third press, with both rolls the same as the second press, and one fourth press, with the bottom rolls 26 inches in diameter and the top roll 24 inches in diameter.

There are also thirteen ash Vacuum pumps for the paper machines. The machines are driven by a General Electric synchronized drive using d. c. motors which take their current from a turbine generator for each paper machine. Each paper machine is made up of nine independent sections, although their relation as to speeds in linear feet per minute is very intimate. The speeds, while slightly differing in each section, must be maintained in precise adjustment in order to produce an unbroken sheet of uniform quality. For this reason the synchronized drive must present a nicety of motor perfection almost marvellous.

How Drive Is Operated

The principle on which the drive is operated is as follows: A 500 kw. direct current geared turbine generator with a 35 kw. exciter mounted on the generator shaft is located in the basement under each paper machine. The rate of production is determined by the line voltage and is 185 v. for 800 feet per minute with a workable range from 500 to 1,200 feet per minute. This voltage is controlled from the machine room by a chain rheostat in the generator field. The turbine speed and the exciter voltage are held constant. The motors driving the various sections have their fields energized by the 125 v. exciter. They are large slow-speed units designed for about 150 r. p. m. at 245 v. to avoid the interposition of gears. The couch roll and calender stack each take a 100 h. p. motor while the presses each take a 50 h. p. motor, the dryer two 100 h. p. motor and the reel a 30 h. p. and rewinder a 35 h. p. motor.

In the finishing room is located one 82 inch Warren rewinder.

Changes in Sulphite Mill

A new digester and another concrete blow pit represent the recent changes in the sulphite mill. This makes three digester and an equal number of blow pits. The digesters which are of steel are of 15 feet in diameter by 47 feet in height. They were built by The Horton Steel Works. The three blow-pits are of concrete and iron and are adequate for three digester charges. The capacity of the sulphite mill is 85 tons in 24 hours. Each blow pit is of 13,000 cubic feet capacity.

A large underground sulphite stock tank is located between the blow-pit building and the sulphite screen room. There the stock is agitated continuously. From this tank the stock is pumped to the Impco knotter screens, located in the sulphite screen room, and then is passed through four Sherbrooke centrifugal screens. There is one 96 inch Rogers double press wet machine with two extra washers, an inclined decker for the sulphite stock, one Trimbey & Allen stock mixer, and four E. D. Jones Majestic Jordan engines.

Chemical Recovery Plant

The G. D. Jennsen Company of New York city designed the acid and chemical recovery plant. Here is produced the calcium bisulphite liquor used for digesting the wood. The standard Jennsen equipment has been installed consisting of rotary sulphur burner, combustion chamber, spray cooler and two concrete acid towers. The latter are 9 feet inside diameter and 94½ feet high. They hold over 400 tons of limestone which is lifted by means of a two ton Otis Fensom elevator in a concrete shaft.

So simple is the operation of the acid system that only one operator is required to manipulate a water valve and the controller of a variable speed motor to have the right raw acid test at all times.

In the screen room extension is one wrapper machine of the cylinder type built by the Dominion Engineering Works and run by a Marshall drive. The cylinders are 48 inches in diameter and 96 inches in length. It handles a sheet of 81½ inches width. It has sixteen face dryers 48 inches in diameter by 86 inches in length.

The product of the St. Maurice mill consists of groundwood and sulphite pulp and news print and wrapper grades of paper. The raw material, pulpwood, is all obtained close at hand in the Province of Quebec.

The logs from the forests of the Province of Quebec, in from thirteen to sixteen-foot lengths, are sawed and barked during the summer. The surplus over the current demand is stored for the winter. Four fuel oil tanks hold 150,000 barrels or a half year's supply of Mexican residue. The pump and filter plant has a capacity of 20,000,000 gallons of filtered water per day. Two transmission lines and transformer banks can provide 24,000 kw. of hydro-electric power. The main boiler house can turn out over 6,000 boiler horse-power without interruption.

Mention has already been made to the fact that the mill is 100 per cent electrified. In the lighting scheme is the electric efficiency seen at its best. Laid out on an economical basis, the light is so well distributed that it reaches everywhere where it is needed without any waste being allowed. About 1,200 Mazda lamps are utilized. They average 100 watts and actually run from 75 to 200 watts. These are fed by open conduits, using conduits for outlets, and all equipped as far as is practicable, with 18-inch white enameled reflectors.

The practical applications of electric power in the plant are many and most diversified. The pumping of water and stock is all done by this means as is the grinding of wood. The plan in which the many auxiliary units are laid out could not be operated so economically or be arranged so conveniently if any other power transmission than electricity had to be depended upon.

The Great Log Haul

Of preliminary interest in connection with the mill is the great log haul which is 20 feet wide and 81 feet long. It was constructed by Ruther & Pringle. There is one slasher, equipped with four 60-inch saws, constructed by Ruther & Pringle, where the logs are cut into proper lengths to be carried along by chain conveyors to three big barking drums. The drums are 12 feet in diameter and 46 feet three inches long. They were constructed by The Canadian Ingersoll-Rand Company. Bark and refuse from the drums is carried to the shavings boiler house by belt conveyors, the whole system showing a fine accomplishment in the way of waste elimination. The shavings boiler house is equipped with six 150 h. p. horizontal tubular boilers, each designed for 125 pounds steam pressure.

With the latest installation of equipment the eyes of the paper-making industry have instinctively turned to the St. Maurice plant. Proud of the completion of its achievement, the International Paper Company has already taken four parties of paper industry experts, engineers, newspaper men and others to Three Rivers to make an intimate inspection of the plant. That it is a modern marvel of completeness and efficiency has been the unanimous opinion expressed by those who have been fortunate enough to investigate for themselves the mysteries of the big paper mill at Three Rivers.

Mead Fibre Co. Adds Paper Machine

The Mead Fibre Company which several years ago started the manufacture of bleached soda pulp at Kingsport, Tenn., is expanding its plant by the addition of a paper machine to make book and magazine papers. The architect for the new part of the plant was the Management Engineering and Development Company and the contractor was W. H. Allen.

The new machinery includes two Dayton high speed, iron tub, beating engines equipped with one cylinder washer each made by the Dayton Beater & Hoist Company and two direct connected motor driven Imperial Jordans made by E. D. Jones & Sons Company.

The machine room contains one 140-inch Pusey & Jones Company Fourdrinier trimming 128-inch and two inward flow screens made by the Bird Machine Company.

The finishing room is equipped with one 136-inch Duplex cutter and one 138-inch four drum winder, both made by the Moore & White Company and one monorail roll handling equipment.

The plant has a capacity of 70,000 lbs. of book and magazine paper per 24 hours.

HUMMEL-ROSS CORP. COMPLETING FINE NEW MILL

Refinements in Equipment Which Will Be Completed About the First of the Year Will Make the Plant at Hopewell, Va., One of the Most Up to Date of the Kind in the Country—Equipped at Present With One Fourdrinier for Making Kraft Paper But Another Machine of Same Type Will Be Installed at an Early Date.

An important era in the career of the Hummel-Ross Fibre Corporation will be entered upon by January 1, 1924, at which time its Hopewell, Va., mill will be in full operation. The work of construction which has been in progress many months is now nearing its end. Last May saw the completion of the paper mill but attendant construction work has continued until this time and will continue until the last of the year. The added improvements to the pulp mill will be completed sometime in December. During the next few weeks a lime filtering plant will be installed.

Other expansion which has taken place during the past year has been along the line of facilities for conservation of white water, additional equipment for improving the chemical recovery plant, extensive improvements in the digesting plant and the installation of much auxiliary machinery.

Joseph H. Wallace & Co. of New York city have been the consulting engineers and The Wise Granite and Construction Company the contractors.

Plant's Commanding Site

The Hummel-Ross office overlooks the James River. It is on a high plateau with the paper mill beyond it at the right. Designed for the production ultimately of 100 tons per day of No. 1 Kraft, it is now equipped for half of that production. Provision has been made for the installation of a second machine at an early date and a general duplication of the present resources is a meditated step of the near future.

Installed in the beater room are four E. D. Jones & Sons beaters of 2,000 pounds capacity and four J. H. Horne & Sons large Horne Jordans which have direct connection with synchronous motors.

The Fourdrinier is of the Dowingtown Manufacturing Company's manufacture. It is a 135 inch machine with a trim of 120 inches. It is equipped with 38 driers of 48 inch diameter, Spangenberg screens, Warren winder and Dowingtown Triplex stock pumps. It is driven by a Cone drive and its speed is controlled by a variable speed engine.

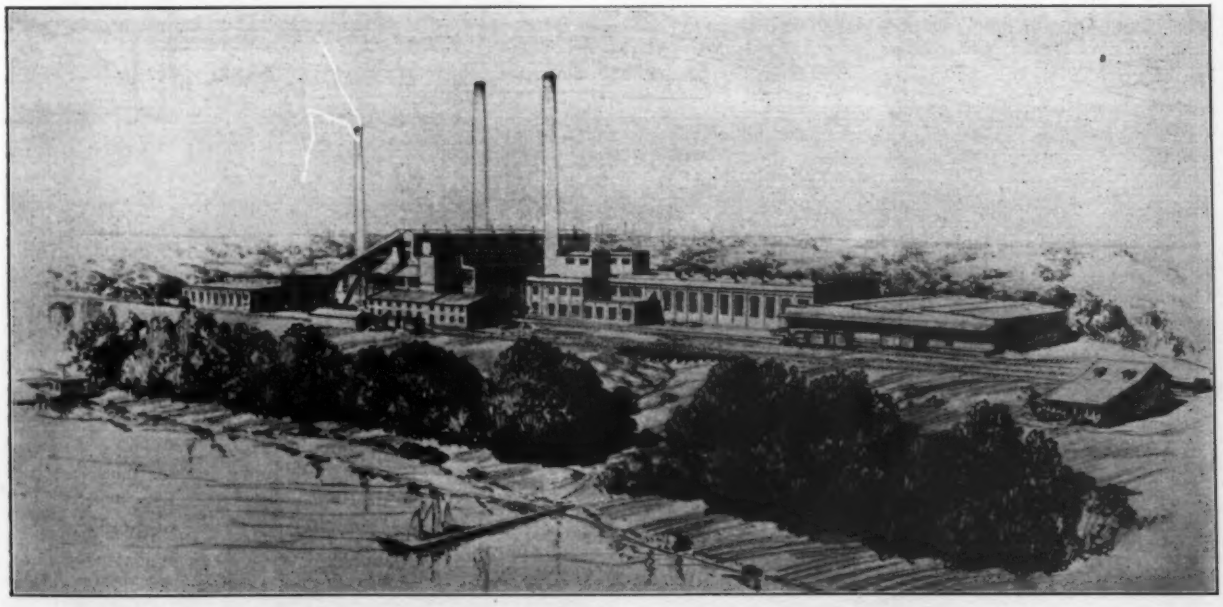
The finishing room is located at the end of the machine room and is of brick and timber construction. It is 90 by 125 feet. The equipment of this room consists of a type 10 Camachine rewinder, Hamblet duplex rotary cutter and Erie layboy, Seybold 12-Z type trimmer.

The Hummel-Ross product consists of sulphate pulp and No. 1 Kraft. Its pulpwood is secured from within a fifty-mile radius of Hopewell.

Convenience the Dominating Factor

The plant taken as a whole is a model of practical utility and convenience. The paper mill, exclusive of the finishing room, is 343 feet in length. The program of construction which has been in progress has included a widening of the mill at the wet end from 87 to 135 feet. Ninety feet of this length is a two-story section with a monitor story 18 by 55 feet in area.

The monitor story is used for the delivery of slushed pulp which is received by two 8-inch Green Bay thickeners from pumps in the digester building. The white water flows back to a new save-all house adjoining the digester building. The stock falls by gravity to a 16-foot agitator tank immediately under the thickeners and above the beater floor, from which it is delivered as required at the proper consistency to the beaters. About the agitator tank are arranged the four 67 by 60 inch roll, high speed Jones beaters which are individually driven by belts from 125 h. p. motors. On the beater



KRAFT PULP AND PAPER MILL OF THE HUMMEL-ROSS FIBRE CORP., HOPEWELL, VA.

room floor are the four large Horne Jordans and the superintendent's office.

Below the beater room are four 12-foot diameter by 24-foot horizontal wood-stave stuff chests with agitators and the necessary equipment for sizing material. The beaters are spouted to two of the chests from which the pumps deliver to the Jordans. The flow continues to the other chests and is then pumped to the screens. On an extension of the basement floor are located the stuff pumps, couch save-alls, blower fan, paper mill engine and other equipment.

Handling of Product

A ten ton traveling bridge crane spans the machine room. Provision is made for handling product through large doors to the finishing room by a light crane at the end of the paper machine. An electric elevator communicates with the beater room and the ground floor of the basement. The engine room floor and beater room have stairways connecting with the machine floor.

Just beyond the power house is the digester building. This has two units of four digesters, each 8 by 25 feet. The water supply comes from two wells, the James River and the city water mains. At the foot of the bank on the shore road is located the pump house. Recent installation of tanks and save-alls has resulted in the saving of over fifty per cent of the water by re-use and the return of over three tons of pulp per day which formerly passed to waste.

The boiler house just beyond the machine room is equipped with four 600 h.p. Edgemoor boilers. The stoker equipment has been replaced by long stroke Riley stokers and suitable fan equipment.

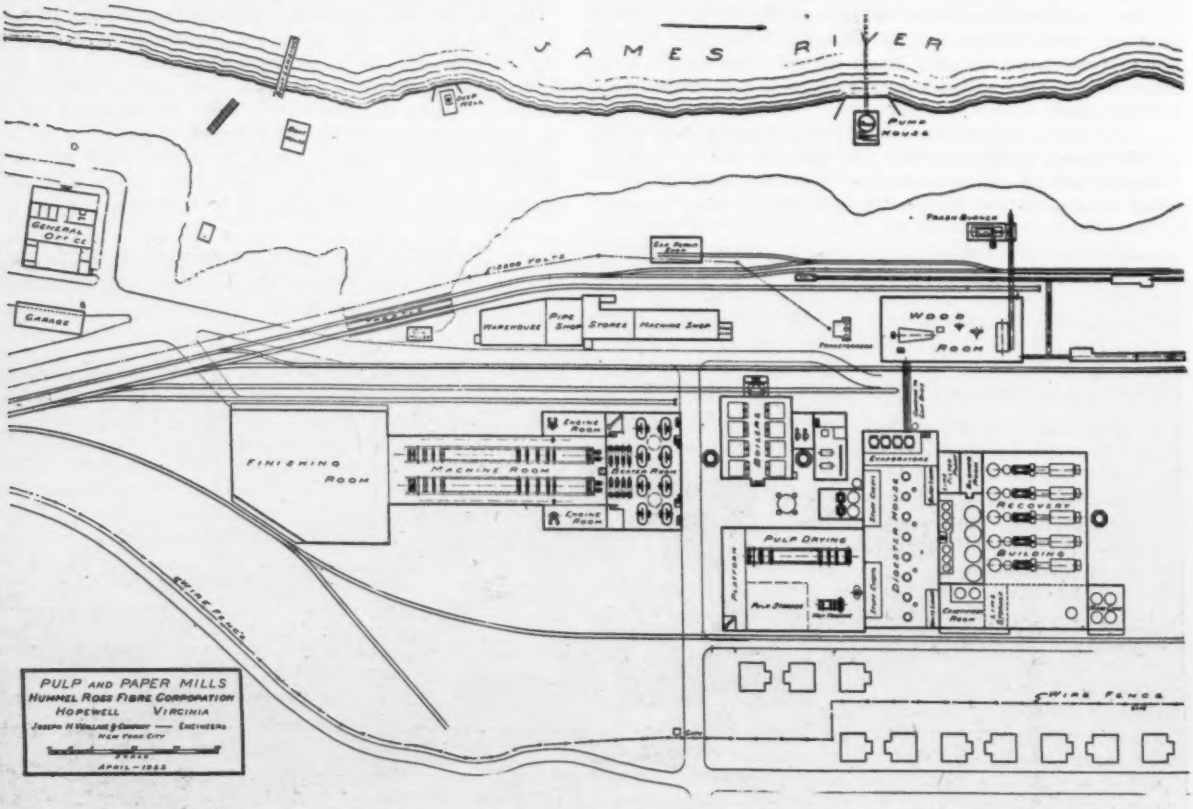
The power plant which adjoins the boiler house contains a 750 k.w. non-condensing turbine, the exhaust of which is used on the pulp drying machine and the multiple-effect evaporators of the liquor recovery.

The plant is conveniently located, the receipt and shipment of product both by water and by rail being an easy matter. The company owns adequate supplies of standing timber which will be utilized in the future operation of the mill.

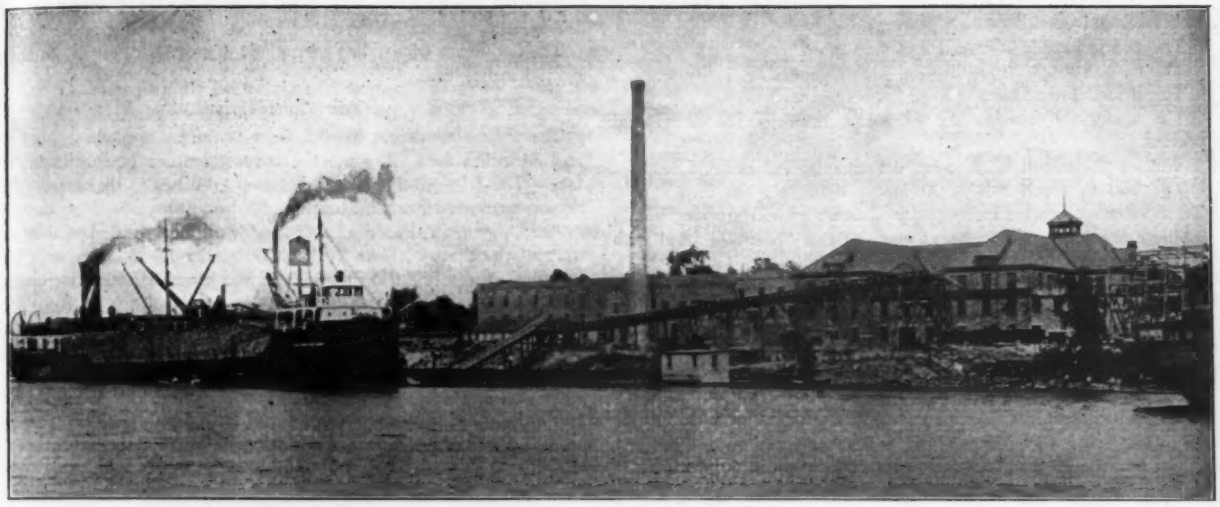
Central Paper Co. Adds Fourdrinier

The addition to the plant of the Central Paper Company at Muskegon, Mich., is rapidly nearing completion. To its three machines —one 120-inch and two 96-inch Fourdriniers—there will be added a 144-inch fast-running Bagley & Sewell Fourdrinier machine, and the present production of sixty-five tons of paper will be increased to one hundred and twenty tons. The new machine will run almost exclusively on No. 1 kraft. The capacity of the sulphate pulp mill is also being increased by the addition of three sulphate digesters, sufficient to produce the pulp required for the new machine. The power plant has been entirely rebuilt, the Babcock & Wilcox boilers having been replaced by a battery of Badenhausen boilers, the reciprocating steam engines by steam turbines, and practically the whole mill electrified. The new machine should be in operation by November 1.

The Central Paper Company was the first concern in the United States to build a kraft mill, in 1909. The sale of the paper is in the hands of the Manufacturers Paper Company. The quality of the paper and the service rendered has been such as to increase constantly the circle of customers of the mill, and therefore the demand for its output. With the new mill running it will produce about eighty tons of kraft pulp and forty tons of sulphite.



PLAN OF MILL OF HUMMEL-ROSS FIBRE CORP., HOPEWELL, VA.



ALGONQUIN PLANT SHOWING FACILITIES FOR PULPWOOD

ALGONQUIN CORP. STARTS BIG PAPER MACHINE

The Bagley & Sewall Company of Watertown, N. Y., recently finished installing at the plant of The Algonquin Paper Corporation of Ogdensburg, N. Y., the largest paper making machine in the United States and one of the marvellous machines of the paper making world. Incidentally the Algonquin plant operating on September 18 last.

The innovation at the Algonquin plant is a 204 inch Fourdrinier to be used in the manufacture of news print paper. It is 35 feet wide, 17 feet in height and 238 feet in length. The weight is 1,000 tons and it required 45 cars to transport it from the manufacturers to the plant. The machine was ten months under construction.

The giant machine requires a room 60 feet wide by 300 feet long. When in operation at the speed of 800 lineal feet per minute, it will produce 100 tons of finished news print in twenty-four hours. The machine is driven by a steam turbine of 650 h. p.

Built for Continuous Service

The machine has been constructed with that thoroughness and care which assures its ability to meet even abnormal tests. There are no weak spots to break or wear out, causing expensive delays and loss of production. It is planned to stand up under the rigid requirement of continuous day and night use for 308 working days in the year. The bearings are consequently of ample surface and the framing rigid to guard against vibration. The revolving parts are all in accurate running balance so that no disturbing forces can be transmitted to the foundations upon which the machine rests.

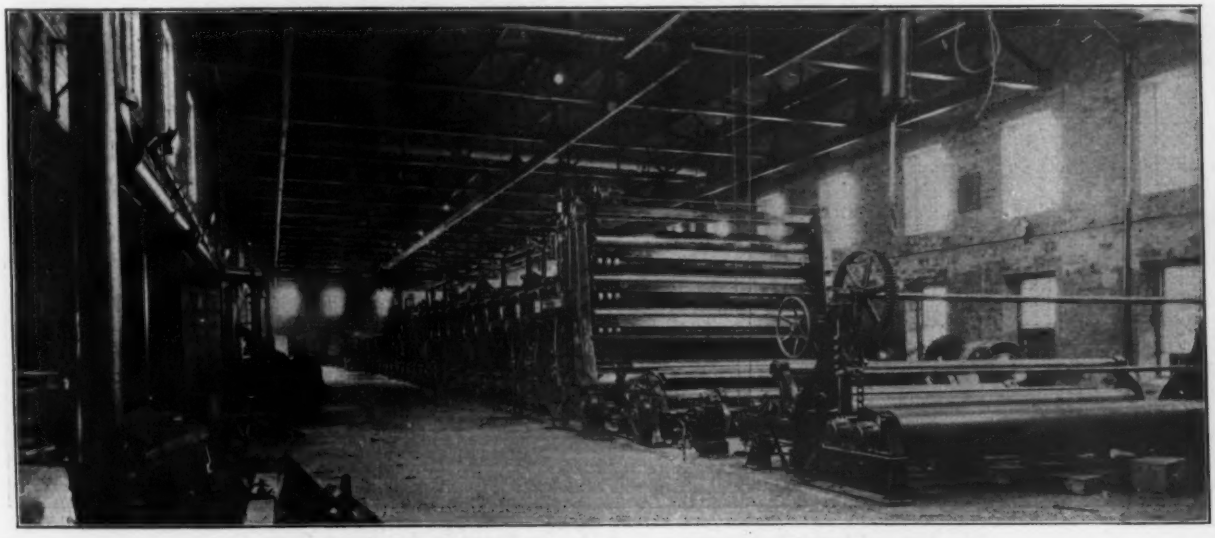
The Fourdrinier wire is of fine bronze or copper wire about 60 meshes to the inch and is endless.

The following description will give an adequate idea of the magnitude of the machine:

The Fourdrinier wire is 204 inches wide and 80 feet long.

The table rolls are of seamless drawn brass tubing seven inches in diameter. They are carried on ball bearings.

The wire rolls are of ten inch steel pipe, turned smooth, then covered with seamless drawn brass tubing. These rolls are also carried on ball bearings.



DRY END OF 204-INCH FOURDRINIER OF ALGONQUIN PAPER CORP.

The breast roll is a bronze casting 20 inches in diameter, 208 inch face, and carried on ball bearings.

The deckle part is of rolled and cast brass.

The rubber deckle straps are 2¼ inches square.

The drawn brass slices are 40 inches high.

The couch roll casings are of bronze, cast by the centrifugal process.

The top couch roll is 28 inches diameter by 212 inches face.

The bottom couch roll is 30 inches diameter, 208 inches face. These rolls are carried in bronze lined bearings and are ring oiling.

There are seven suction boxes made of cast brass and fitted with maple perforated covers.

The Press Rolls

There are three presses. The bottom press rolls are 30 inches diameter with cast iron centers and covered with rubber one inch thick. The first and second top press rolls are granite, 22 and 24 inches in diameter. The third press top roll is a bronze casing 26 inches in diameter. Each press carries an endless woolen felt 58 feet long.

The press felt rolls are of ten inch steel pipe, covered with brass jackets. These rolls are carried in ball bearings.

There are 34 dryers each 60 inches in diameter by 204 inches face, making a total of 9,079 square feet of heating surface. There are also four felt dryers each 48 inches in diameter by 204 inches face. The dryers are carried in bearings lined with bronze and fitted with oil rings.

The dryer spur gears are of cast iron, the teeth being cut from the solid rim. There are ten chilled iron calender rolls. The bottom roll is 30 inches diameter, the next roll 20 inches diameter and seven intermediate rolls each 14 inches diameter. The top roll is 20 inches in diameter. All rolls of 198 inches face.

These rolls are all solid and the bottom one weighs over 22 tons and is the heaviest single piece of the machine. The speed reel has a drum 42 inches in diameter and a 202 inches face.

The slitting machine has six pairs of double edge bottom slitters and patent top slitters. The drum is 12 inches in diameter by 198 inches face.

The two-drum winder has corrugated drums 18 inches in diameter by 198 inches face.

Floor Cone Drives

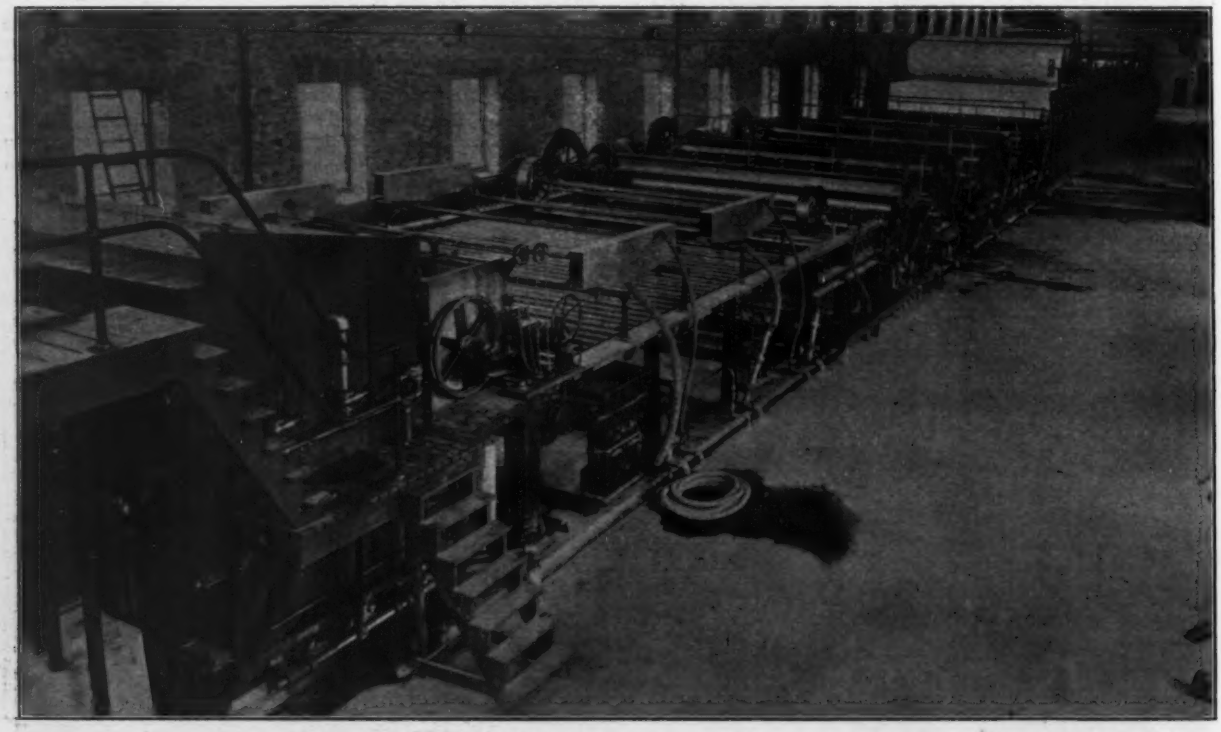
The floor cone drives have pulleys 54 inches in diameter and 24 and 30 inches face. The mortise bevel gears are 12 and 15 inches face. The friction clutches are 28 and 30 inches in diameter. The drivers are carried on ball bearings.

The Algonquin Paper Corporation was incorporated under the laws of the State of New York on December 17 of last year. The company issued $600,000 in preferred stock and $15,000 of common stock. The directors consisted of F. A. Augsbury, Edward L. Strong, both of Ogdensburg; Stuart D. Lansing, president of the Bagley & Sewall Company; Alvah H. Miller, head of H. G. Craig & Co., paper brokers, New York City, and George M. McKee, a leading paper maker of Canada. Mr. McKee was elected president and general manager; F. A. Augsbury, vice-president; E. L. Strong, secretary and treasurer; Fred L. Hogan, assistant manager; William E. Westbrook, assistant treasurer and chief accountant.

Took Over Ogdensburg Mills

The Algonquin Company took over the plant of the Ogdensburg Paper Mills, Inc., and on January 9 of the present year awarded a contract to the Austin Construction Company for a complete remodelling of the old Continental building, the principal building of the plant. Work was immediately begun. An addition 152 feet long and 60 feet wide was built on the easterly end, the boiler house was enlarged and an extension was also made on the western end to increase grinder room capacity. The old wooden floors were replaced by concrete and steel floors throughout.

The work was completed in May and in the latter part of that month the installation of the machinery was begun. All the auxiliary machinery attendant upon the big Fourdrinier was installed during June, July and August.



WET END OF LARGEST FOURDRINIER IN U. S. A. AT PLANT OF ALGONQUIN PAPER CO.

NEW BOILER PLANT OF PARKER-YOUNG CO.

The new boiler plant of the Parker-Young Company at Lincoln, N. H., designed by the company's engineering department comprises a reinforced concrete building 80 x 100 feet floor area by 60 feet high. A 12 foot basement is provided to accommodate feed pumps, fans and ash handling equipment.

Bituminous coal received on siding in carload lots is unloaded by revolving crane capable of depositing and reclaiming from pile approximately 250 tons per day. The crusher house, which is also of concrete construction, is so located that the crane can either handle coal direct from the car to crusher or from storage. In short, all coal is handled from the car to stoker by the crane operation alone.

The coal is dumped from bucket into hopper over Jeffrey reciprocating feeder serving a 24 inch crusher. From the crusher the coal feeds on to an 18 inch inclined belt conveyor which in turn dumps into a distributing scraper conveyor running lengthwise over a 200 ton steel bunker, down spouts having a very sharp discharge angle shoot the coal into stoker hoppers as needed.

For recording weight of coal a Merrick Integrating Weightometer is mounted on the inclined belt. A hand operated weigh larry is also provided to guard against weightometer breakdowns.

Coal is fed to four Type E Stokers serving four 463 HP Heine Water Tube Boilers set in batteries of two each and having a furnace 10 feet high by 12 feet long. Boilers are normally operated at 175 per cent rating, steam pressure 150 lbs.

Draft is provided through forced and induced draft fans, spare units being provided in each case to insure constant operation. These fans, made by the Green Fuel Economizer Company, Beacon, N. Y., are controlled by a Hagan Regulator, speeding up or slowing down according to steam demand.

Feed water may be taken from three distinct sources. Four 8-inch Spray Engineering Company strainers are arranged in parallel so that two strainers may be cleaned while the other two are in operation. Water is delivered to a Hoppes open feed water heater on firing floor, where temperature is raised to 160 degrees Fahrenheit. It is then delivered by gravity to suction side of either of two 3 stage Jeanesville centrifugal pumps. These pumps, either of which is large enough to carry load, are driven by Terry single stage turbines. Control is effected through Copes Pump Governors. Feed pumps deliver water through General Electric Water Meter to Green Economizer likewise arranged in parallel and of ample capacity individually to insure economical temperatures. Water enters the boilers at 250 degrees Fahrenheit.

In connection with induced draft fans a novel scheme is employed to quench incandescent soot particles which would normally escape from stack. Underneath the fan room a long concrete chamber is provided. At one end of the chamber is a dam or scroll over the surface of which water is allowed to flow in a thin sheet. In operation the soot particles discharged from the induced draft fans are thrown by centrifugal force against this wetted surface and immediately discharged to sewer. Such cinders as escape the wetted scroll are carried along the so called expansion chamber, which, due to increased cross section, causes sufficient drop in air velocity to cause particles to fall by gravity to bottom of chamber where they are washed to sewer. The expansion chamber gradually converges so that velocity is brought back to normal at base of stub stack.

The plant is well equipped to give operators constant warning of just what is going on.

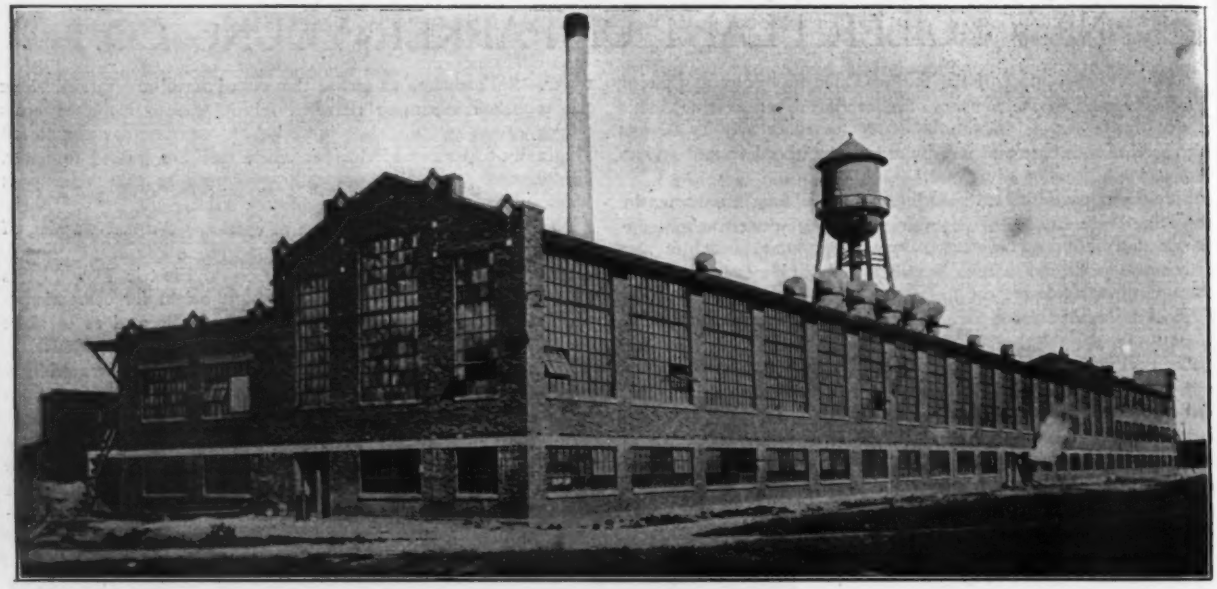
Steam and water are metered by General Electric Flow Meters mounted between batteries at a convenient height for obsrvation.

Philo Multipl Draft Gauges are likewise so located as to make it convenient for operator to watch draft and wind box pressure.

Indicating thermometers check feed water temperatures while a Uehling Co., Recorder with individual indicators give a constant warning against excess air, etc.

Ashes are dropped into concrete ash pits, fire brick lined, where they are quenched from firing aisle by means of a water spray. The pits are of sufficient capacity to allow a 12 hour accumulation. It is the day man's job to dispose of all ashes accumulated in twenty-four hours' run.

HEINE BOILER INSTALLATION AT PLANT OF PARKER-YOUNG CO.



CHILLICOTHE PAPER COMPANY IDEALLY LOCATED

The Chillicothe Paper Company was organized in the early part of 1919 for the purpose of building a one machine mill to make book, bond, writing and similar grades of paper. The outstanding features recommending Chillicothe as a logical location for a paper mill of this kind are its central location in the market for these grades of paper, excellent railroad connections, cheap fuel, abundant water supply and a labor supply much above the average.

With a capital stock issue of $750,000.00, nearly all subscribed locally, the project was started in September, 1919, by purchasing 22 acres, letting the contract for the buildings to the Austin Company of Cleveland. The buildings were completed by the end of the year and the installation of equipment was completed June, 1920, when the machine was started.

Buildings of the Plant

The buildings include a beater room, two stories and basement, the top floor of which is used for old paper conversion, a machine room of one story and basement, a finishing room, boiler room and two warehouses for raw material storage. These buildings are of reinforced concrete, brick and steel construction except the warehouses which are of temporary construction. Special attention was given to proper light and ventilation with a result that dark corners were avoided and a more attractive and cleaner mill is made possible. The buildings are equipped with automatic sprinklers, water supply tank and hydrants, giving the best possible protection against fire. A sidetrack from the Norfolk & Western Railroad serves all buildings in such a way that incoming and outgoing freight can be handled to the best advantage.

Equipment of the Mill

The paper machine built by Rice, Barton & Fales is a 138 inch straight Fourdrinier having a 70 inch wire, suction couch roll, three presses, one a smoothing press, thirty 48 inch dryers, one nine-roll an done seven-roll stack of calenders, a Pope reel and a Moore & White four-drum winder. The power to drive the machine is supplied by a 200 k w Turbo Generator, 250 volts direct current supplying a 150-230 h. p. motor which drives the several sections of the machine through a system of parallel cotton ropes, each section being supplied with a McMahon clutch. The operating characteristics of this equipment provide a speed range from 90 to 450 feet per minute. Exhaust steam from the turbine is delivered directly to the dryers which are provided by traps discharging by gravity to the boiler room. A Stickles system of control is used to provide automatically live steam or relieve excess exhaust. The constant line of the machine is operated by a 100 h. p. Squirrel Cage motor. This line operating stuff pump, vacuum pumps, white water pumps and saveall.

Six 1,500 lb. Noble & Wood Beaters are driven in pairs by three 75 h. p. slip ring motors, belt driven to beaters. One Noble & Wood Mammoth Jr. Jordan is driven by a 150 h. p. Squirrel Cage motor. A second Jordan of the same size is now being installed to be driven by a 290 k. v. a. synchronous motor.

The old paper plant equipment includes the usual dusting and cleaning equipment, the papers being cooked by two 2,000 lb. Downingtown Cooking Engines.

The finishing room equipment includes a 134 inch Moore & White duplex cutter, a 60 inch single cutter and one 74 inch and one 64 inch Seybold trimmer.

Power Plant Equipment

The power plant is equipped with two 500 h. p. B. & W. Boilers operating at 160 lbs. Besides supplying the 200 k. w. turbo generator on the paper machine, steam is also supplied to a 750 k. w. turbo generator which furnishes the A. C. power for the mill. This unit is equipped with a Wheeler condenser. One boiler is ordinarily used in the operation of the mill, the second being held in reserve. The operation of this plant requires an average of forty tons of coal per day.

Officers of the Company

The Chillicothe Paper Company was oragnized by Hector McVicker, the president and general manager of the company; Mr. McVicker is well known to the industry, having spent over forty years in the manufacture of high grade paper in every capacity from winder boy to president. The sales department is under the management of Austin Story who is also treasurer of the company. N. J. Nicks is operating superintendent.

HAMMOND BAG AND PAPER CO. STARTS NEW MILL

The new paper mill and bag factory just completed by the Hammond Bag & Paper Company at Willsburg, W. Va., is said to be one of the most up-to-date of the kind in the country.

This company was organized and incorporated in April, 1922. Construction work on the plant began in the fall of 1922, was continued throughout the Winter and Spring, and finished in the summer. Installation of the paper making and bag machinery has been in progress for several months and the plant is now ready for operation.

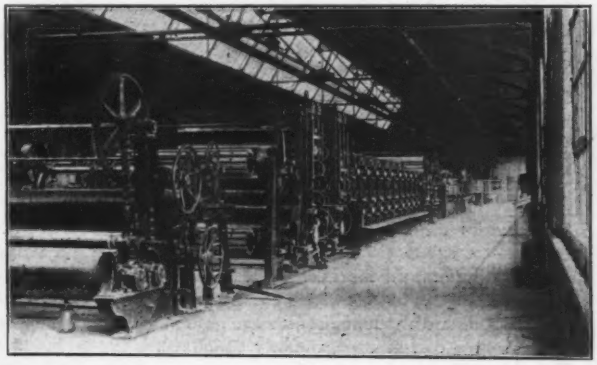
To Make Manila Rope Paper

The new plant will manufacture a complete line of manila rope papers and rope paper bags for flour, cement, lime, plaster and other builders' materials and cereal products.

T. H. Hammond, president and general manager, and M. J. Davis, secretary of the company, are both men of wide and valuable training and experience. Mr. Hammond's connection with the rope paper and bag industry dates back 35 years during which he has been associated with The S. George Company and The Harvey Paper Company of Wellsburg, W. Va., and with Taggart Brothers Company of Watertown, N. Y. Mr. Davis was likewise associated with the Taggart company for several years.

Beater Room

Mr. Hammond and Mr. Davis designed the new mill, selected the equipment, superintended the work of construction and installation, and performed all the engineering work of layout and design. They are to be congratulated on the result of their efforts and on the efficiency and compactness which they have built into the plant. It is to be classed as one of the most complete and modern mills in the country.



Machine Room

Features of the Building

About 80,000 square feet of floor space is comprised in the building which measures 130 feet by 400 feet. Reinforced concrete, brick and steel were used throughout. A large basement extends under the entire mill, with the exception of the boiler room. The one-story design and the layout of the rooms promote close relationship of departments and unusually high operating efficiency. Conveyors and labor-saving devices have been incorporated wherever possible.

The large window area in the sidewalls and saw-tooth roof provides excellent lighting throughout the plant. Daylight conditions prevail in every room. Splendid shipping facilities are afforded

New Paper and Bag Factory of Hammond Bag & Paper Co., Wellsburg, W. Va.

by a Pennsylvania Railroad sidetrack which extends the full length of the building. A Layne-Bowler water well equipped with a vertical turbine pump will furnish two thousand gallons of water per minute for paper making purposes. Rain water from the roof is collected in a 50,000 gallon cistern for use as boiler feed water. Process steam is supplied by a 500 H. P. battery of Wickes boilers. Coal is hauled to the boiler room by motor truck, directly from the mine, 3 blocks away. A radial brick stack built by The Alphons Custodis Chimney Construction Company is conveniently placed at the side of the boiler room.

Machinery Equipment

The rotary boilers for cooking the cut rope were furnished by The McNeil Boiler Company. The beaters are of the Niagara type built by the Valley Iron Works Company. The 86 inch, three-cylinder paper machine built by The Bagley & Sewall Company is the last word in cylinder paper machines. Condensation in the dryers is removed and returned to the boilers by the Farnsworth system. The Waldron double width coating machine is equipped with Sturtevant ventilating apparatus, furnished and installed by The J. O. Ross Engineering Corporation. Cottrell multi-color rotary printing presses and Smith & Winchester bag machinery comprise the bag factory equipment.

The plant is driven throughout by electric motors, with power from the 250,000 H. P. mine-mouth generating station of The West Penn Power Company, 4 miles south of the city. The electric equipment, including the variable speed drive for the paper machine, was furnished by The General Electric Company.

PIONEER PAPER CO. STARTS MILL AT LOS ANGELES

Indicative of the rapid industrial development in Southern California and the substantial future which is anticipated for the paper and roofing business on the Pacific Coast, the Pioneer Paper Company of Los Angeles has completed construction of a new chip board and felt mill, with additional storage warehouses and factory equipment, at a cost of approximately $1,250,000.

The new mill, warehouses and tanks occupy seven acres in the heart of the Vernon industrial district in Los Angeles. It adjoins the roofing plant of the Pioneer Paper Company, which is located on eight adjoining acres, making a total of fifteen acres of plant and facilities of this company, which 35 years ago began its operations in Southern California under the guidance of its present president, Willis G. Hunt, as a jobbing house of roll wrapping paper.

Founded in 1888

In 1888 the Pioneer Paper Company was founded by Mr. Hunt. A few years later the concern began manufacturing prepared roofings and building papers. Before many months, the company's name was changed to the Pioneer Paper Company and from then until the present day, it has built steadily and consistently to an enviable position among the manufacturing establishments of the great Southwest and in the paper manufacturing field.

Prepared roofings, insulating papers, felts, waxed papers and chip boards are now included in the list of products manufactured by the Pioneer Paper Company at its plant in Los Angeles.

The great strides in Western commerce during the past few years, taxed the Pioneer plant to its capacity. Although additional equipment was installed at various periods in an effort to keep pace with the demand for Pioneer products, the mill was unable to supply sufficient quantities to fill the increasing number of orders.

Investment of Over Million Dollars

When the new chip board and felt mill was begun, the Pioneer Paper Company's plant represented an investment in excess of a million dollars.

The expenditure of another million and a quarter in addition, proves the confidence held by Mr. Hunt and his associates in the future of the industry on the Pacific Coast. H. M. Eichelberger is secretary and treasurer of the Pioneer Paper Company and William Henry, vice-president and general manager.

The new machine in the chip board and felt mill was built by Black & Clawson of Hamilton, Ohio. It is 122 inches wide and has 60 dryers. There are four cylinders; the felt cylinder 48 inches and the others 36 inches. The machine manufacturers roofing felt, sheathing paper and light weight chip.

Other Equipment

The engine operating the machine was built by Chandler & Taylor and the motors were purchased from the General Electric Company. The six beaters are from the Dilts Machine Works Company of Fulton, N. Y., and the newest type iron tubs have been installed. The Save Alls are from the Green Bay Foundry and Machine Company and the stuff pumps from the Beloit Iron Works. James L. Carey of Chicago is the engineer.

The rag storage plant is 150 x 225 feet and is equipped with three electric traveling cranes. The cut rag storage is a concrete building, 30 x 40 and 40 feet high. Two No. 20 Grant Taylor Styles Rag Cutters of the latest model have been installed.

Belt conveyors operate from the cutters to the cut rag storage and from there direct to the beaters. Wells providing 750,000 gallons of water have been developed on the property.

The mill itself is 60 x 250 feet, the machine room 60 x 100 feet and the beater room 50 x 150 feet, all brick buildings, with saw tooth roofs and well lighted. Two spur tracks have been laid into the plant, one on each side with a 22 car capacity.

Factory Capacity

The roofing factory has a daily output of 16 cars. Three machines are operated continuously in the manufacture of roofing and three for making asphalt roofing, felt and insulating papers. The new chip board and felt mill will have a daily capacity of 60 tons.

The Pioneer Paper Company ships its products to all points on the Pacific Coast, Australia, China, Japan, Java, India, Alaska and both South and Central America. The executive offices are located at 247 South Los Angeles street, Los Angeles and branch offices are maintained in San Francisco, Portland and Seattle.

Mumford Paper Mills Making Changes

Extensive changes are being made at the Mumford Paper Mills at Mumford, N. Y., with the intention of improving quality and increasing production.

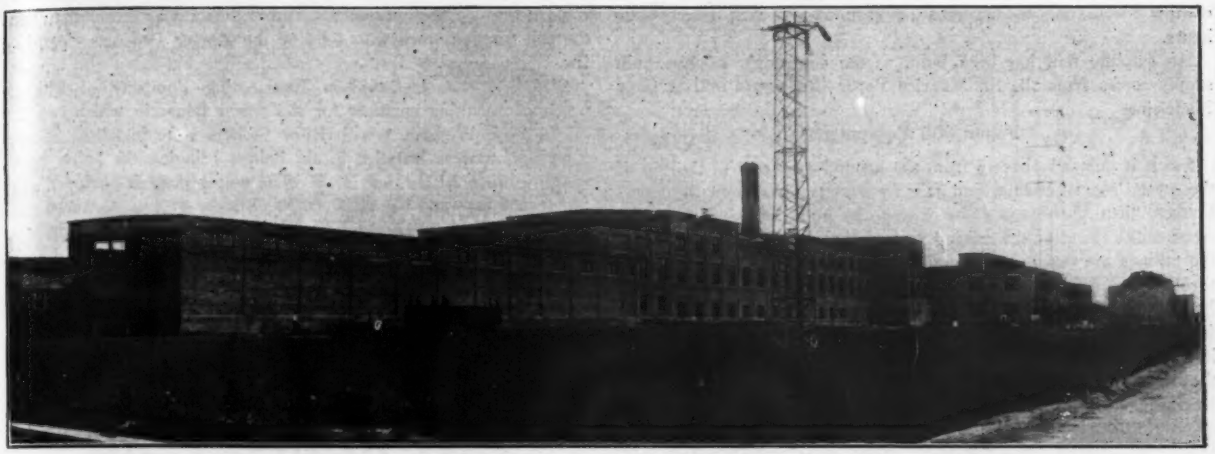
Up to the present time this mill has been making tissue for toilet purposes, but when the changes are completed, it is the intention to make the best grades of No. 1 White Tissue and light weight manifold papers.

The mill is located on a spring brook of sparkling, clear water, unsurpassed by any in the country, which in itself is a wonderful asset in making fine paper.

There is being added a new water wheel 75 H. P., a new beater, a new Harper Fourdrinier wet end on machine, with a Walpole Screen, a new stack of calendars, etc. The steam and power plants are being improved and a new variable speed engine is being installed to operate the paper machine.

Everything is being done to have the mill turn out superior quality of high grade specialties.

W. H. Howe of Buffalo is president and G. E. Beggs, of Rochester is secretary and treasurer of the mill.



ST. LAWRENCE PAPER MILLS AT THREE RIVERS

In operation only a few months, the mill of the St. Lawrence Paper Mills, Ltd., at Three Rivers, Que., promises to become one of the formidable organizations of the Canadian paper industry.

Construction work on the plant commenced late in June, 1922, and on June 1 of the present year the mill produced 120 tons of paper.

The plant was designed by the engineers in the organization of the company and Hardy S. Ferguson of New York city was retained as consulting engineer on the work.

There is no water power development in connection with the plant as all the power is drawn from the Shawinigan Water and Power Company's power plant at Shawinigan Falls, Que.

Thompson Starrett Co. Builder

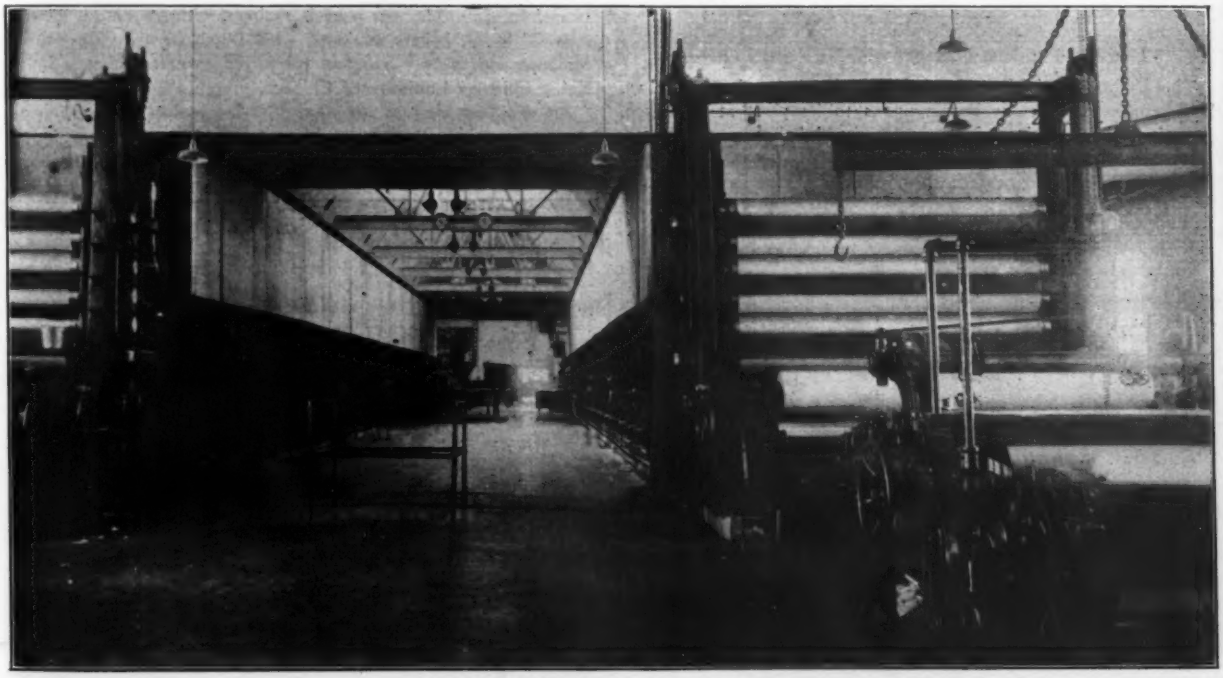
The contractors on the buildings of the property were the Thompson Starrett Company of Canada, Ltd., who had all foundations and mill construction work, and the Foundation Company of Canada, which had all the under water work in connection with the building of a modern pumping station.

The boiler house is equipped with three B. & W. 600 hp. boilers, equipped with 1,200 h.p. Cox stokers, very high settings, and with force induced, and natural draft.

Three steam turbines have been installed, two of which are direct connected with 500 h.p. d.c. generators. The third is connected with 650 k.v.a. alternating current generator for auxiliary power in the mill. The d.c. generators provide the power for the Harland paper machine drives.

Groundwood Mill

The groundwood mill consists of eight Voith magazine grinders direct connected with four 2,400 k. v. a. Westinghouse synchronous motors, each motor installed between two grinders. The capacity



VIEW FROM DRY END IN MACHINE ROOM OF ST. LAWRENCE PAPER MILLS

of this installation is 135 tons of groundwood each twenty-four hours.

No sulphite mill has been built, as the company's sulphite pulp supply comes from the St. Maurice Paper Company's mill at Cape Madeleine.

Paper Mill Equipment

Stock is pumped directly from the groundwood mill to the top of the screen room building, and falls by gravity, first from the Knott screens, then the fine screens where the good stock goes to the stock tanks ahead of the mixing system, through the thickeners, and the tailings are dropped by gravity through the tailing screens, then through the refining engine and into the tank for prepared stock. From the mixing system it flows through the Jordan engines—one for each paper machine—and from there to the machine chest, where it is pumped through the Bird screens and head box arrangements on the 158 inch wire of the paper machines, built by the Dominion Engineering Works of Montreal. The maximum trim of these machines is 148 inches and the machines are equipped with suction couch roll, suction press roll, plain second press and forty-two 5 ft. dryers, the steam in which is controlled from the low pressure steam accumulator and regenerator system by Locke Regulators, and then to the Pope reels. It is then rewound on the Dominion rewinders, lowered to the finishing room floor level by means of Craig Ridgeway reel length elevator and then through the Finishing Room process.

The paper machines are driven by the Harland electric drive, and the production of these machines is 75 tons each per twenty-four hour day.

Finishing Room Equipment

The finishing room is equipped with an additional rewinder for emergency purposes, and an Elwell Parker electric truck for handling the rolls. The loading shed takes care of ten cars and was built complete for handling the capacity of two more machines, at such time as they are installed. The floor storage capacity of the finishing room is 1,000 tons of paper.

Pulpwood is obtained from the limits of John Breakey, Limited, on the Chaudiere River and its branches.

Beaver Products Improves Vulcanite Mill

The Vulcanite Division of the Beaver Products Company, Inc., has completed important improvements to its plant at Anderson, Ind., including addition of power plant and boiler room and reconstruction of felt machines. The architect was E. R. Law and the construction work was done by the Beaver Products Company, Inc.

The Woodmansee-Davidson Engineering Company of Chicago was the consulting engineer for the power house in which two 350 H. P. B. & W. boilers with Riley Stokers were installed. Foster superheaters were installed in six boilers bringing the boiler house capacity up to 2,100 rated H. P. The power plant is equipped with Sturtevant fans and one 2,000 K. W. Bleeder type G. E. turbo generator.

Four 1,000 lb. Dilts Beaters were installed and thirteen 650 lb. boilers were rearranged for direct drive by Westinghouse motors. One Noble & Wood mammoth Jordan was installed with direct motor drive and two were used with direct water drive.

One 86-inch single cylinder and one 74-inch single cylinder were completely overhauled, giving the mill a capacity now of 180,000 lbs. per 24 hours of all grades of roofing felts.

In carrying out this work the entire beater room was rearranged so that additional beaters could be installed and the beaters were set so that they could be driven direct from motors; two beaters being belted to each motor.

In addition to this the Jordans were equipped with direct drive motors instead of being driven from a line shaft as previously.

An old Corliss engine which was used for driving the beaters was discarded and the 2,000 K.W. generator unit mentioned was installed to drive motors for operating all of the machinery throughout the mill with the exception of the wet end of the machines which are driven by variable speed steam engines as previously.

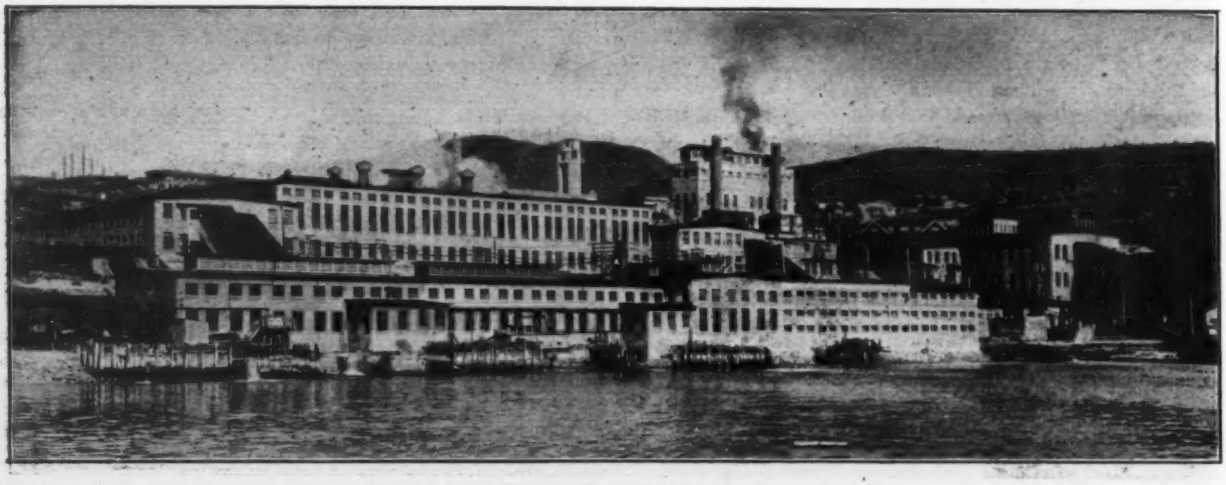
The boiler room was completely overhauled; two new boilers being put in and superheaters being installed in the original four boilers in operation.

An old wooden floor in the beater room was removed and a concrete and steel floor put in.

Powell River Co. Builds New Power Plant

Important improvements to the plant of the Powell River Company, Limited, Powell River, B. C., include a new steam plant which was designed by Charles C. Moore & Co., engineers, San Francisco, Cal. The new plant is equipped with six 490 H. P. water tube B. & W. boilers equipped with Dutch ovens. The plant is equipped with a 14 x 250 foot reinforced concrete chimney by the Heine Chimney Company of Chicago.

An excellent view of the company's large plant is shown in the accompanying illustration.



PLANT OF THE POWELL RIVER CO., POWELL RIVER, B. C.

The Bat

Cannot See the Light of Day—

EBG

and others cannot see the light of reason

In the light of the proved superiority of Liquid Chlorine for every bleaching operation many operators still cling to the antiquated and costly Chloride of Lime method.

You'll find E B G Service as efficient as E B G Liquid Chlorine—in fairness to your balance sheet give them a mill test.

Electro Bleaching Gas Co.

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Liquid Chlorine

SOUTHERN PAPER CO. MAKES BIG EXPANSION

One of the important mill construction activities of the present year is the construction work which has been going on at the present plant of the Southern Paper Company at Moss Point, Miss., and which is now nearing completion.

This work has been of so broad a scope that it has extended to all departments of the present mill. In connection with the program of expansion is also included the installation of much new machinery, including another modern high speed papermaking machine The changes will mark a new epoch in the life of the Southern Paper Company, for the completion of the program will see the mill's capacity increased to 100 tons daily of Kraft paper from Southern pine woods.

The history of the plant has been one of progress. Edward H. Mayo is the general manager of the plant and a director of the company. During the past ten years, under his management, the company has enjoyed an ever-growing success.

So general have been these changes that they may be spoken of, without exaggeration, as a general plant transformation. The additions and other improvements which mark the new move in expansion have been capably designed and supervised by George F. Hardy, pulp and paper mill engineer of New York City, who has also designed and supervised all the improvements made at the plant since 1915.

The present construction work was begun in the early part of the year. The departments whose extension was called for by the plans are the wood preparing, the liquor making, the soda recovery, the pulp making, the paper making and the power.

Modern Construction Used

The new additions are all of modern construction, with brick walls, steel and concrete floors and roofs of either slow-burning wood construction or gypsum.

The general contractor for all the construction work is George J. Glover, of New Orleans.

The following description of what is being done in each department will give a general idea of the transformation which will result when the work is finally completed.

The wood-preparing department for the entire mill is new construction throughout in a fireproof structure. Some of the present equipment will be reset and, in addition, new equipment will be installed, as follows: A new chipper, furnished by The Carthage Machine Company, and a new chip screen of the latest model, furnished by Ryther & Pringle.

The extensions to the liquor-making and soda-recovery departments will have two additional recovery units, furnished by Pusey & Jones, while a new vacuum evaporator, furnished by the Zaremba Company, will also be installed.

All the liquor tanks and other steel-plate work is being furnished by the Walsh & Weidner Boiler Works.

The pulp-making department will have additional welded digesters of the rotary type, furnished by the M. W. Kellogg Company. Additional pulp screens will be supplied by the Sandy Hill Iron & Brass Works.

Paper Machine Installed

The paper-making department will have its efficiency increased by the acquisition of some important new equipment. There will be additional beaters and jordans of E. D. Jones & Sons' manufacture.

The paper-making capacity of the plant will be increased by the installation of a new modern high speed Kraft paper-making machine. This is being furnished by the Rice, Barton & Fales Company. It has a 168-inch wire and will trim from 144 to 152 inches. The new paper machine will have the latest type sectional electric drive, furnished by the General Electric Company. Screens for the new machine are of rotary type, furnished by the Bird Machine Company.

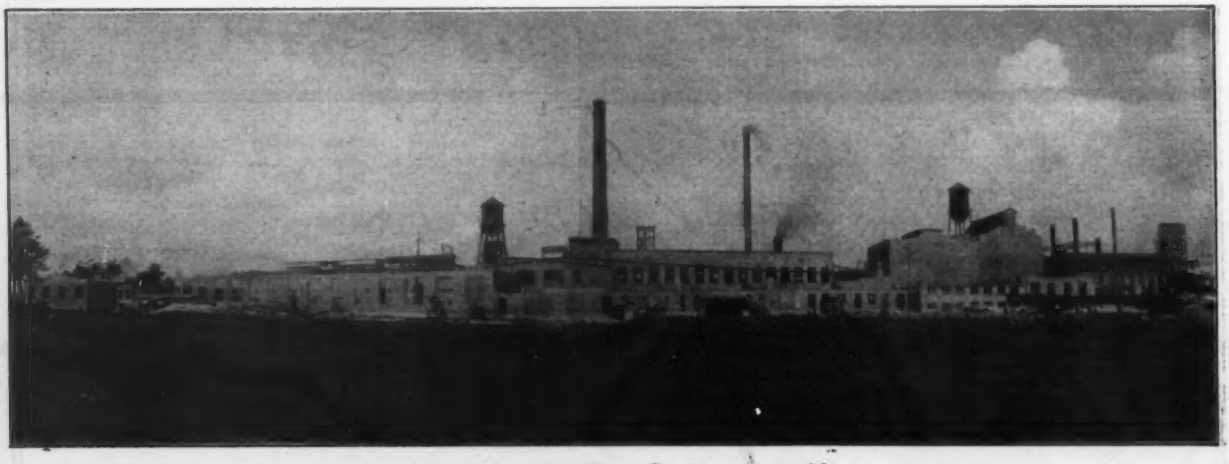
F. M. Blethen is supplying the traveling cranes for the new machine room and also for the steam turbine room. A roll grinder of the lastest design is being supplied by the Farrell Foundry and Machine Company.

The finishing room is being further equipped with a new 152-inch Duplex cutter of J. H. Horne & Sons' make, complete with an Erie Layboy. All centrifugal pumps for stock and water are being supplied by the Worthington Pump and Machinery Corporation.

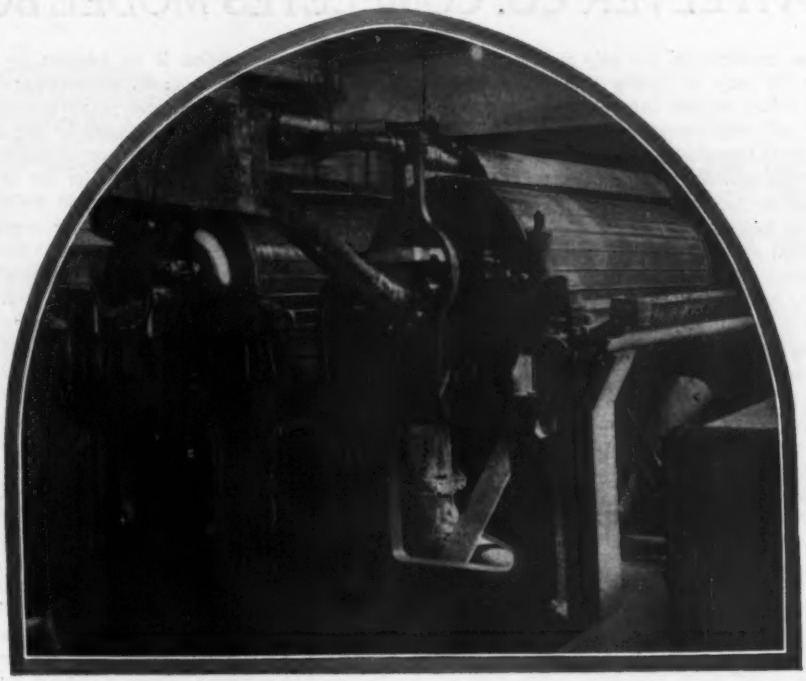
The transformation extends to the power department, which consists of an entirely new steam boiler plant, one unit of which was built a few years ago, and a new steam turbo-generator room. The boilers are all of Badenhausen make and are equipped for fuel oil.

The new steam turbo-generator unit is of the Bleeder type and is being built by the C. H. Parsons Company, England. It will be equipped with a condenser of the C. H. Wheeler Manufacturing Company's make.

The entire mill is electrically driven throughout. The switchboards and motors are being supplied by the General Electric Company, except the synchronous motors direct connected to the jordans. These are made by the Electric Machinery Company.



PLANT OF THE SOUTHERN PAPER CO., MOSS POINT, MISS.



If You Use Long-Fibred Slow-Working Stock

If you make rag writings, bonds, ledgers, rope manilas, tissues, glassine and similar grades of paper from long-fibred, slow-working stocks your screening difficulties will be largely eliminated by the use of the Walpole screen.

The Walpole Screen catalog tells you how.

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Montreal, Canada

THE WALPOLE SCREEN

5469

P. H. GLATFELTER CO. COMPLETES MODEL BOOK MILL

The present size and condition of the pulp and paper mills of the P. H. Glatfelter Company at Spring Grove, Pa., has been brought about by the policy adopted five years ago, of rebuilding and adding to the old mill until everything about the plant, buildings and equipment, should represent the most modern type of mill for the manufacturers of book, writing and bond paper.

Situated in the town of Spring Grove there is plenty of land available so that all the buildings but one are of one story only. The flow of raw material into the plant and the various processes from clipper to shipping platform are in logical order with a minimum of unnecessary handling. The buildings are of brick with steel and gypsum roof construction.

The most outstanding additions to the plant are the filter plant, laboratories, 170 inch machine room, beater room, storage building and finishing room.

The filter plant is of six and a half million gallon capacity, two filter beds being especially equipped to supply the town with drinking water. An addition to the sedimentation basin and the position of the filter plant make possible the flow of water into the plant by gravity where sand filters of the Norwood Engineering Company clarify the water. All the high and low pressure pumps are also located in the building.

The laboratories are newly equipped throughout for the testing of raw materials and the chemical control of the mill.

The new paper machine is 170 inches in width and built to run at a speed of 600 feet per minute. It is the largest machine in the world making high grade book papers, and embodies many new features not usual in machines of this kind.

The most noticeable is the removable Fourdrinier part which facilitates the putting on of wires and machine clothing. An electric drive of the sectionalized type is provided. The machine has been in operation since about the first of the year with very satisfactory results.

To furnish stock for the machine is a new storage and beater room with two Jordan and two beater engines of the Jones type.

Nearing completion is an addition to the boiler house which will contain a one-thousand horse power boiler with the necessary auxiliaries. During the past year the electrical generating capacity of the plant has been increased by the addition of a 3,000 Kw. Turbine.

Contracts have already been let for motors and Lennix drives in the beater room of the old mill which will put into stand-by service the 1,000 horsepower triple expansion engine which has been the main unit of the power plant since 1888.

The capacity of the Spring Grove Mills is at present 40 tons pulp and 100 tons of paper. Three hundred men are employed.

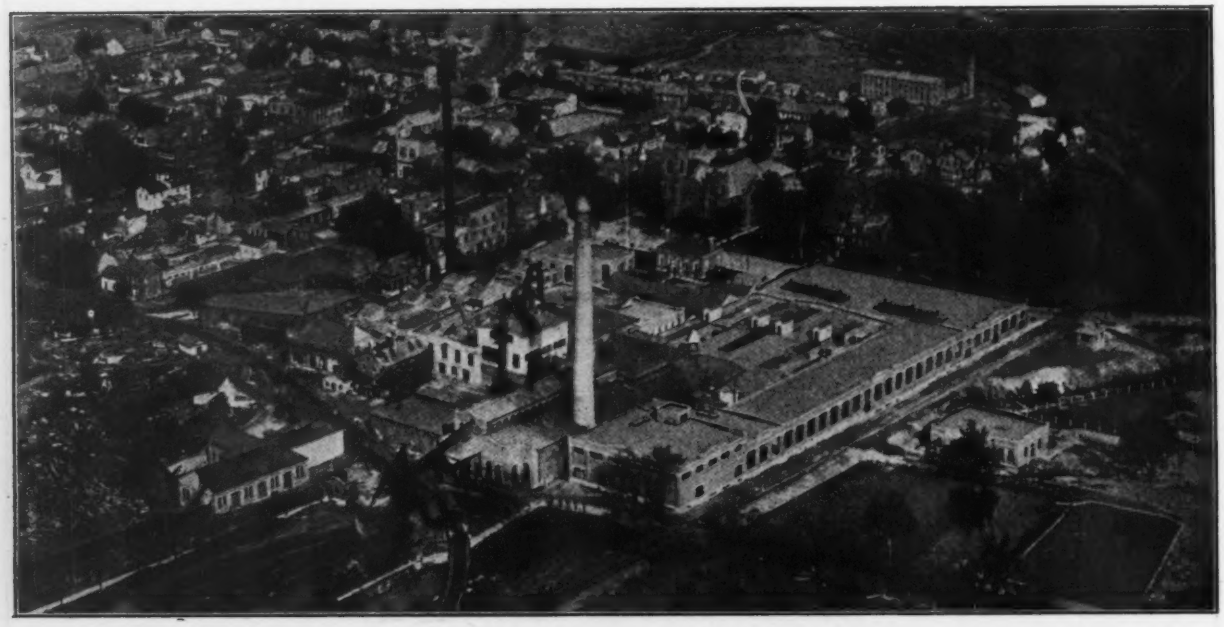
Allied Paper Mills' Improved Plant

The Allied Paper Mills of Kalamazoo, Mich., are completing numerous improvements to their various divisions which will keep them in the up-to-date shape that has always characterized their plants.

At the Bardeen Division at Otsego the company is rebuilding a part of the flume of mill No. 1, which will materially increase the efficiency of the water power at that point.

The principal improvement at the King Division at Kalamazoo is in the power plant where in addition to the four 500 horsepower Connelly boilers installed a few years ago the company has just finished installing two 500 horsepower Wickes boilers. The new Wickes boilers are equipped with superheaters manufactured by the Superheater Company, and type E stokers supplied by the Combustion Engineering Company and force draft, fan and engine furnished by the Clarage Fan Company at Kalamazoo. The coal will be supplied to these boilers through an overhead bunker and larry, the coal handling equipment being furnished by R. H. Beaumont Company, Philadelphia.

At the Monarch Division the company has just completed the installation of a new steam engine driving its No. 7 machine and has also just built a new roof on its beater room which incorporates features that improve the lighting and ventilation of the room.



Air Plane View of Plant of P. H. Glatfelter Co., Showing Improvements

"ALL works of quality must bear a price in proportion to the time, skill, and risk attending their invention and manufacture. Those things called dear are, when justly estimated, cheapest."

John Ruskin

Why We are making *a* Quality Product

Experience has proven that in the long run the most successful firms are those who give the best value; the finest quality at a price fair to both the purchaser and the manufacturer. That is why we are producing paper and pulp mill machinery of especially high quality. Perhaps equipment of this better quality costs a bit more to install, but this little bit more is returned many times by the greater efficiency and longer life of the machine. We are builders of Niagara Beaters, Holland Type Beaters, Washers, Bleachers, Centrifugal Pumps, Stuff Pumps, Wet Machines, Board Machines, Cylinder Machines, etc.

Valley Iron Works Company

Plant:
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New York Office:
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A postcard or letter will bring to you an attractive booklet telling you more regarding our product. Write for it today.

GREAT NORTHERN BUILDS HYDRO-ELECTRIC PLANT

Installation of a new hydro-electric plant, which has just been completed, will not only enhance the general efficiency of the Madison, Maine, plant of the Great Northern Paper Company, but will solve the problem of maintaining the full output of power required to operate the mills when the Kennebec River is in flood and the water in the tailraces of the power plants is at a high elevation.

The new hydro-electric plant has been built on the opposite side of the Kennebec from the Madison plant. It is located about 250 feet below the westerly end of the old masonry dam, on the West shore, along which runs "Arnold's Road." It is in the town of Anson which is divided from the town of Madison by the river.

A Spot of Historical Interest

Historical interest attaches to the site for the old road above mentioned owes its name to Benedict Arnold, American General in the Revolutionary War. The road was built by Arnold at the time of his memorable campaign into Quebec for portaging by the falls in the Kennebec River which he ascended on his way to Quebec. The old road has stalwartly withstood the ravages of time and the name, "Arnold's Road" still clings to it.

The new development has come as the result of necessity and replaces the hydraulic development which was old, inefficient in the use of water, and insufficient in capacity for the ever growing demands of the mill. That it ought to be abandoned has for some time been evident to the company's officials and last year it was decided to begin operations on the new development at once. The first actual work was begun late in the fall of that year and the excavation work was pushed ahead right through the winter that it might be completed before the spring flood came.

It was fortunate that this program was followed for otherwise tedious delay might have been caused during the spring period. The flood came and, as if angry at the operations which would help thwart its power in years to come, proved a record breaker. The damage done was great and the Great Northern plant was not permitted to escape the ravages of the Kennebec. Another year will find the plant so safeguarded that a repetition of the damage suffered on past occasions will be impossible or, at least, reduced to a minimum.

An Efficient Plant

The Anson plant was designed by Hardy S. Ferguson of New York City and includes the latest ideas and most up to date hydraulic and electrical equipment which have been developed in connection with hydro-electric power plant work. The construction work is of a permanent type, and has been very thoroughly completed under the supervision of E. W. Prouty, the resident engineer.

The power house has already been completed and the turbines and generators are now in the last stages of installation. The entire equipment will be in operating condition by November 1.

The canal is in the last stages of completion and it is expected that water can be admitted to the power house during the last week in October.

Plant a Large One

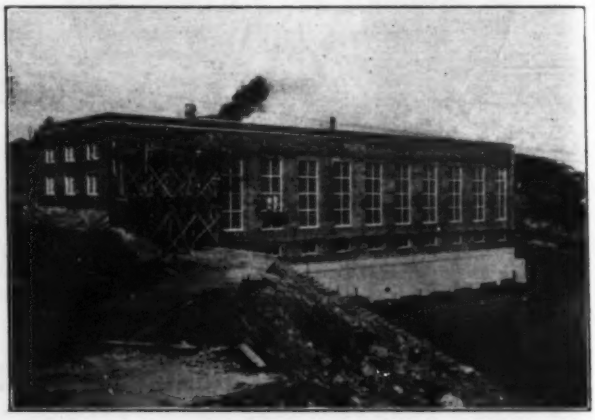
The Anson plant is a large one. The power house is 189 feet long and is built to contain five generating units. Four of the units are now being installed, each turbine of 1,500 horse power capacity operating under a head of 20 feet. An average of 500 men have been employed on the work of the plant for a year and part of that time as many as 650 have been engaged on various operations incidental to the construction plans.

A large amount of ledge excavation was necessary for the canal wheel pits and tailraces and much of the refuse stone, not used for making concrete masonry, was used in the making of permanent roads which have been of great benefit to the town.

At the same time the Great Northern Paper Company has been installing new machinery in the Madison mills, rebuilding and enlarging the ground wood pulp mill preparatory to receiving the electric current from the Anson side of the river.

The new plant installed five 1,500 horsepower turbines on vertical shafts, each driving a 1,500 k. v. a. electric generator. Only four of these five units have been installed at this time but preparations have been made so that the fifth unit will be put in whenever it is deemed advisable. As it is, the four units will give an abundance of power for the present demands of the mill and with it surplus pulp can be manufactured and stored.

The turbine builder is William Cramp & Sons Ship and Engine Building Company of Philadelphia and the electrical equipment is built by the General Electric Company.



New Power House of Great Northern Paper Co.

One of the Chief Advantages

The new plant has many advantages over the old but, perhaps, the chief advantage is that it is not only of a much higher efficiency in every respect but that the head under which the plant will operate will be two feet greater than that of the old plant.

The turbines are of high speed type developed by William Cramp & Sons Company and are guaranteed to give 90 per cent efficiency. They are set in flumes of the scroll type, built of concrete masonry, as is the whole sub-structure of the power house.

The electric generators are of the vertical shaft type and are connected to the turbine shaft. Two of the generators will have exciters mounted at the upper ends of the shafts for starting purposes. In additions, there will be two motor generator sets on the floor for exciting the main generators under ordinary running conditions.

How Plant is Controlled

The switchboard is located on the gallery floor at one end of the power house and contains all the necessary instruments and controls for the station. The main switches are in a room above the gallery. A storage battery is provided for operating the switches when the station is started. From this room the 2,300 volt transmission lines will cross the river to the mill plant.

The flume gates and trash racks are enclosed in a gate house adjoining the generator room to eliminate ice troubles when op-

Established 1886

Looking Forward

Some organizations look backward, because they have nothing to which they can look forward. Some look forward because they have nothing inspiring in retrospect. Some live only in the present because they have had no past and are apparently without any future.

This organization can glance backward at thirty-seven years of reliable, helpful service and association with its clients. It can look ahead to the continuation of a policy that has made it the potent factor that it is in its field.

As for the present, it is reaping the just reward of work that has been well and faithfully performed.

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New York, N. Y.

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Stockholm, Sweden.

erating and cleaning them in the winter. The gates are operated by a machine mounted on a car which can be transferred from one gate to another on a track.

A mechanical raking device will be installed for cleaning the trash racks. The water between the dam and the station flows through a canal excavated along the shore of the river. The power house and canal are so arranged that whatever the height of the water in the river above the dam it will be substantially the same height at the intake of the flumes. The net fall available during flood times will not be greatly reduced as was the case with the old plant when the water rose above a certain level.

A guard wall of reinforced concrete has been built diagonally across the canal to protect the plant from ice or debris that may float down the river at flood time. By this means all floating material will be sheered off from its course before it can reach the power house and cause any damage or interruption to operations.

Improvements at Oregon City and West Linn

Oregon City and West Linn, twin cities on the Willamette river, Oregon, the center of the paper manufacturing in Oregon, are at present in the midst of great extension and improvements in the plants of Hawley Pulp and Paper Company at Oregon City, and the Crown Willamette Paper Company at West Linn across the Willamette river.

At the Hawley plant a new power house is under construction. A new flume has been built, replacing the old flume built to the old mill many years ago. A new fire-proof beater room is also included in the Hawley improvements. These improvements are all well in hand. The cost is estimated at $300,000.00. Further improvements have just been announced by President W. P. Hawley. These include the construction of a new fire-proof building 80 x 350 feet, and the installing of two new paper machines, G. A. Macklem, engineer for Beloit Iron Works, has been in Oregon City for some time arranging details with the Hawley management.

At the Crown Willamette plant an extensive program of extensions and renewals is under construction. A complete new concrete building replaces the old wooden structure housing the sulphite plant. A Jenssen acid system has been installed. A new concrete beater room has been erected. A shops building is under construction 90 x 120 feet, 3 stones high for machine shops, etc. A sea wall is being built along the Willamette River giving more ground for future extension. These improvements at Hawleys and Crown Willamette Plant will cost from three to five million dollars.

Howard Smith Paper Mills Expand

The capacity of the Cornwall Mill of the Howard Smith Paper Mills, Limited, has within the past year been increased to 100,000 lbs. per day and the finishing capacity has been increased correspondingly. The buildings were designed by the company's own engineer and built by Phileas Dore, contractor, Valleyfield, Que.

The present water wheels are being replaced by turbines, supplied by the Dominion Engineering Company, Ltd.

The three wet presses at the sulphite mill are being replaced by one Kamyr Wet Press, supplied by the G. D. Jennsen Company, New York, agent for the Scandinavian firm manufacturing these presses.

At Cornwall the company has had in operation, for the past year, a chlorine plant, producing 12 tons of 35 per cent bleach and 5 tons of caustic soda per day. Samuel Green & Co. were the consulting engineers.

For the past year at the Grabtree Mill Plant, Que., the company has been operating a groundwood mill with three grinders—capacity 25 tons per day. In addition to the water power development at Crabtree Mills, the company is using Electric Power purchased from the Shawinigan Power Company.

West Milton Papper Mills Improvements

A new beater house, a new boiler house, a new power plant and water system comprise recent improvements at the plant of the West Milton Paper Mills, Inc., West Milton, Saratoga County, N. Y. The contractor on the new development was the Bancroft-Jones Corporation of Buffalo, N. Y.

The company's waterpower development is 200 H. P. The dam is a log and earth dam, 18 by 600 feet. The hydraulic and electrical machinery was built by James Leffel & Co. and Allis Chalmers, the former furnishing the turbines and the latter the generators.

The consulting engineers and builders of the power plant was the Kerr Turbine Company of Wellsville, N. Y. There are three 200 H. P. return tube boilers with Coppus blowers.

One 500 K. W. Kerr turbine and a Schutte-Koesting jet condenser have been installed.

The present equipment of the paper mill consists of two 1,200 pound Holland beaters made by the Downingtown Manufacturing Company, four 600 pound Holland beaters and two 500 pound Holland beaters.

There are two Harper Fourdriniers, the widest trimmed sheet being 78 inches. These were built by the Sandy Hill Iron and Brass Works. The machines are equipped with ten four foot and twelve three foot driers and are driven by electrical motors with line shaft and Reeves drive.

The finishing room contains a Seyboldt 64 inch cutter, motor driven, and a Beeman folder made by the Dillon Machine Company.

The mill product is tissues, manilas, crepes and specialties, 20,000 pounds being produced daily.

Mac Sim Bar Co. Builds Fine Power Plant

Among the notable improvements of the past year in the line of power plants may be mentioned the fine new plant constructed by the Mac Sim Bar Paper Company of Otsego, Mich. The work on this plant started early in 1922 and was completed in October, 1922. The architects were Billingham & Cobb of Kalamazoo, Mich., and the contractor, H. L. Vanderhorst of Grand Rapids, Mich.

The building is 136 feet long, 66 feet wide and 72 feet high. The equipment includes a battery of six 500 H. P. vertical water tube boilers made by the Wickes Boiler Works, each equipped with a Combustion Engineering Company's type "E" underfeed stoker. The boiler horse power is rated at 3,000.

Six forced draft fans and six induced draft fans of the Clarage type are direct connected to individual vertical engines made by the Engberg Engine Company of St. Joseph, Mich.

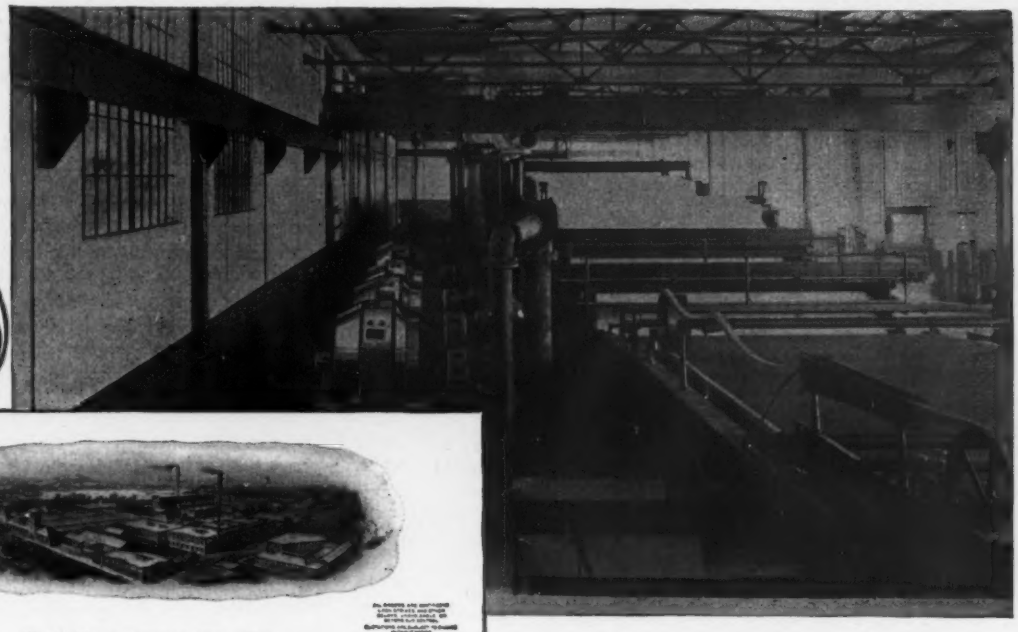
A recent installation in the paper mill is a 100 ton per day Breaker beater purchased from the Valley Iron Works.

The Mac Sim Bar Paper Company produces plain chip, combination, set-up and folding boxboard, plain and grained jutes, suit box, patent coated, oyster and ice cream pail, butter carton stock, card middles and boxboard for coating and specialties.

Oxford Paper Co. Adds New Machine

The Oxford Paper Company among important improvements to its plant at Rumford, Me., has added a paper machine with necessary buildings and has made an extension to its bleach making plant. The new Fourdrinier takes a 162-inch wire and is equipped with electric driving and speed control. It was built by the Rice, Barton & Fales Machine and Iron Company, Worcester, Mass. It has a capacity of 40 to 50 tons of book paper per 24 hours. The auxiliary equipment includes Bird Machine Company screens and a Gould Manufacturing Company's stuff pump.

Other additions to the equipment include eight 2,000 lb. beaters, one Black & Clawson refiner, and a 24 x 36 Hamilton Corliss engine.



P. H. GLATFELTER CO.
PAPER MANUFACTURERS

SPRING GROVE, PA.

General Electric Co.,
Schenectady, N. Y.

Jan. 12, 1923.

Gentlemen:

Relative to your inquiry of January 12th, in reference to the Sectional Paper Machine Drive, which you furnished us for our new 170" paper machine, we are very much pleased with the simplicity of the drive and the ease with which the draws can be adjusted. At no time has the drive given us any serious trouble.

All of the men operating the paper machine are well pleased with the simple control. I might say these men have never had any electrical experience, but are now operating the machine without any assistance from the electrical department.

Yours very truly,
P. H. GLATFELTER CO.

PHG-M

G-E Sectional Paper Machine Drive is operating successfully on all makes of machines, and all grades of paper —from 50 ft. to 1000 ft. per minute. We will gladly furnish you with estimate of G-E Sectional Drive for your paper machine.

G-E Sectional Drive for Paper Machines

Installations In Operation: **No.**

Glatfelter Paper Company, Spring Grove, Pa.	— Book 1
Crown Willamette Paper Co., West Linn, Ore.	— News 1
Mead Pulp and Paper Co., Chillicothe, Ohio	— Book 2
Ontario Paper Company, Thorold, Ont.	— News 1
Kimberly Clark Co., Niagara Falls, N. Y.	— Book 2
Spanish River Paper Co., The Soo	— News 1
St. Maurice Lumber Co., Three Rivers, Que.	— News 4
Consolidated Water Pr. & Paper Co., Wisc. Rapids, Wisc.	— News 1
Oregon Pulp and Paper Co., Salem, Ore.—Glassine and Grease Proof.	— 1

Installations Under Construction:

Kalamazoo Veg. Parch. Co., Kalamazoo, Mich.	— Specialties 1
Central Paper Company, Muskegon, Mich.	— Kraft 1
Southern Paper Co., Moss Point, Miss.	— Wrapping 1
Consolidated Water Power & Paper Co., Byron, Wisc.	— News 1
Warren Manufacturing Co., Milford, N. J.	— Specialties 1
Total	19

GENERAL ELECTRIC

43B-20

PAPER MEN HOLD CONFERENCE IN CHICAGO

Annual Fall Meeting Is Unusually Well Attended by Manufacturers and Merchants From All Over the Country—Various Branches of the Industry Hold Individual Meetings at Which Problems of Importance Are Discussed—Salesmen As Usual Take Prominent Part in the Proceedings—Speakers Optimistic Regarding Outlook

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, October 15, 1923.—The attendance last week, Tuesday, Wednesday and Thursday, of the fifth annual Fall conference of the American Paper and Pulp Association and the National Paper Trade Association at the Hotel Drake was unusually large and while Western paper manufacturers and paper merchants naturally predominated, the attendance from the East and other sections was gratifying. As many meetings have been held during the past six months between individual manufacturers and their special agents at which their mutual problems as well as those concerning the industry generally have been considered, there were not as many subjects remaining to be gone over specifically as at previous conferences.

The Business Situation

Outside comparing opinions on future business, the main subjects discussed were the standardization of sizes, weights and colors and that of reforestation—both of great interest—to all branches of the industry. While there was no real pessimistic sentiment expressed relative to the business outlook, there was an atmosphere prevalent which might be construed as showing that all business had not fully come up to expectations. Production of all grades of paper as well as shipments have shown an increase, though the stocks of the paper merchants have not moved with the same degree of speed.

Dr. Merchant on the Situation

Dr. E. O. Merchant of the Mead Pulp and Paper Company of Dayton, Ohio, speaking before the Salesmen's Association on Wednesday, on "Business Forecasting With Special Reference to the Paper Industry," did much to relieve the situation of uncertainty. He stated that an unusual number of business forecasts of a varying character were being given out just now. The "Business Cycle" he added was divided into four periods—depression, revival, prosperity and liquidation. He regarded the present as the period of prosperity. Business was on a sounder basis than at the end of March last. Consumption was increasing and in view of existing money conditions the future appeared in a very favorable light.

Other Optimistic Views

Similar optimistic views were expressed by W. J. Raybold, former president of the American Paper and Pulp Association at the joint conference meeting between the manufacturers and merchants and also in the talk of George E. Roberts, vice president of the National City Bank of New York, given during the banquet of the Salesmen's Association.

In analyzing the situation in the Fine Papers branch of the industry, Mr. Raybold cited that orders on hand were 86% of normal, production 93%, shipments 90%, and the manufactured stock on hand covered thirty-four days supply. He also stated that the recent strike at Holyoke had reduced the fine paper supply by 30,000 tons.

Continued Prosperity

The American Pulp and Paper Association issued a statement at the joint conference on Thursday, which reviewed the situation as follows:

"Some of the more optimistic authorities predict that the period from now until the middle of 1924 will be the most nearly normal period of activity that the paper industry has experienced since the war. This attitude is not sponsored by the Association, but is mentioned as evidence of the optimism felt in some quarters.

"In general, basic conditions seem to favor an upturn of all industries. Transportation problems are being met successfully, labor conditions are stable with increasing rather than decreasing wages, and foreign complications, if not favoring a better development of trade, are certainly not such as to warrant undue anxiety.

"Before referring to specific conditions in the paper industry it may be well to turn back to the Association statement of a year ago, when it outlined a situation warranting a belief in returning prosperity. That this was justified is shown by the production of paper in the first six months of the year. January production was larger than for any other month in the country's history. May broke all records, except that of January.

"After such a return of prosperity, and after such a volume of production only conditions approaching a boom could have prevented a seasonal decline in the summer months. That the July and August total, small though it was, as compared with the January-May figures, was above the sixty day normal is only additional evidence of the basically sound condition in the industry.

"There have been difficulties in the raw material situation, such as the shortage and consequent high prices for groundwood pulp, due to low water. Imports of foreign pulp have recently been larger than ever before recorded. The possibility of an embargo on the export of Canadian pulpwood has disturbed the wood market. No recession of prices due to possible lower costs of raw materials can be anticipated.

"The situation in the various groups of the paper industry varies somewhat according to the grade. The fine paper demand is increasing, with stocks in the hands of printers and merchants below normal. In this field manufacturers anticipate very good business well into next year, if not through the year. Book papers are improving somewhat, with the temporary relief of the casein shortage, and shipments in August showed an increase of 18 per cent above July. Wrapping papers have felt foreign competition severely, particularly in the offering of foreign papers of inferior quality to the American product. Paper board reflects an increased public buying of general commodities, this is seen also in the specialty papers used for food containers. The effect of the strike in the New York paper box factories is still problematical. News print is keeping up a high production figure, and 1924 consumption may exceed even the high figure of 1923.

"In general there seems to be no doubt of the approach of a period of good general business, and the paper manufacturer can not fail to be favorably affected. This is particularly the case since the conservatism of the paper industry in the past twelve months not only prevented increases of prices such as would have caused a buyers' strike in this basic industry, but relieved the industry as a whole from the after effects of an unwarranted price inflation."

In concluding his talk at the banquet on Wednesday, Mr. Roberts remarked: "There is nothing wrong with fundamental conditions—there is no reason why we should not have prosperity." The optimistic views thus expressed did much to clarify the seemingly pessimism which marked the early opening of the conference.

Paper Industries Exchange

At the meeting of the Wrapping Paper Manufacturers J. R. Mauff on Wednesday outlined the workings of the recently organized Paper Industries Exchange.

"The exchange system of trading is a method whereby both sellers and buyers congregate for trading purposes and where such trading is conducted by public outcry," said Mr. Mauff. "The pur-

RECEIVERS' SALE

OF THE

Hoboken Paper Mill

Pursuant to an order of the District Court of the United States, the undersigned will offer for sale at public auction, the property of the Hoboken Paper Mill Company, located at Rossman, Columbia County, New York, on Thursday, October 25th, 1923, at 3 P. M. on the premises.

The property can be reached by train to Hudson, N. Y. and by trolley from there to Rossman and from Albany by trolley.

Trolley runs every two hours, leaving both Hudson and Albany at 8, 10, 12 and 2 o'clock. Running time from Albany is one hour and twenty minutes and from Hudson twenty minutes.

Property consists of approximately 90 acres of Farm Land, twelve houses for employees, and Mill property, extending across the Kinderhook Stream, which is approximately 250 ft. wide. Natural Rock Dam 28 to 30 ft. fall, located on the Albany, Southern railroad, also boat connections to New York from Stockport.

Buildings are of concrete, built in 1920 and '21.

Machinery consists of the following:

1 Board Machine, trim 80 inches; 5 moulds; 60 dryers 36" in diameter; 5 Packer Screens; 3 Stacks of calenders; rewinder and double cutter; 2 1500 lb. beaters; 3 1000 lb. beaters; 1 3000 lb. Allen Mixer; 3 Monarch Jordans; 6 large stuff chests, Electrically driven; 4 Horizontal tubular boilers, approximately 650 H. P. One large machine and carpenter shop, consisting of lathes, presses, saws, etc.

Have been manufacturing Test, Solid, Double, and Single Manilla Lined Chip, News, Chip and other paper board specialties.

Receivers conducted business until August 31st, 1923.

We will also sell approximately 200 tons of Paper Stock, and miscellaneous paper mill Supplies.

Signed,

WILLIAM C. RIDGWAY,
and
HERMAN RINGEL,
Receivers.
41 Park Row, New York

pose of this viva voce operation of trading is to fully disclose to all those in attendance just what each and every one is not only willing to do, but contracts to do. This method of trading in the open and under the full light of day, as against the old secretive idea, is the keynote to the success of this exchange system of trading wherever it has been tried out on either a large or small scale for any length of time.

"The question of price determination when it is arrived at by joint action of buyers and sellers permits of no question as to the correctness of such deduction, and by process of evolution eventually those in the trade, whether members of an exchange or not, invariably turn to the quotations on the exchange in order to arrive at a basis upon which to trade. This is the case on the grain, cotton, sugar, coffee, cotton seed oil and cotton meal exchange, and also prevails on the stock exchanges in regard to securities.

"The trade practices can be inaugurated and carried out through an exchange properly organized, and market information and statistics can be cleared and compiled through the exchange."

Mr. Mauff said the greater the membership in an exchange of this kind the greater the co-operation. He said that on Tuesday, October 16, the exchange will open its New York branch in the Pershing Square Building, which fact, he said, is the acid test of the success attained during the short period of less than two months of operation.

Special Meetings

On Monday a meeting of the distributors for the American Writing Paper Company was held which was addressed by the general salesmanager George E. Cadwell and the future policy under the present receivership was outlined. Another meeting of importance which was held on Thursday was that of the special agents of the West Virginia Pulp and Paper Company.

Thursday Morning's Session

Henry W. Stokes, of the York Haven Paper Company, York Haven, Pa., and President of the American Paper and Pulp Association presided Thursday morning at the joint session of that association and the National Paper Trade Association. Dr. Hugh P. Baker, Secretary of the American Paper and Pulp Association assisted President Stokes in making announcements regarding the winding up of the big convention week.

Sees Continuation of Good Conditions

W. J. Raybold, of the B. D. Rising Paper Company of Housatonic, Mass., and former president of the American Paper and Pulp Associations was the first speaker discussing the "Fine Paper Situation." In part, he said:

"Perhaps the largest factor affecting business conditions is the purchasing power of the country. There are three great divisions of purchasers in America: (1) the farmer; (2) the industrialist; and (3) the investor. What is the condition of these three groups of purchasers today? The purchasing power of the farmer has not been entirely destroyed by the low price of wheat. As a matter of fact, the income of the farmer has increased 22 per cent over 1922. Labor never was more fully employed than it is today and almost at the peak of wages. The investment class is perhaps worse off than any of them. But with the resumption of dividend payments evident, this third class is bound to possess its full purchasing power again. The population of the United States has increased 15 per cent since the war which means 15,000,000 people of all classes added to our market and you can see what a tremendous market we have.

"The credit condition of the country never was more sound than today. There is a larger volume of freight moving on railroads. The financial condition of the railroads is improving. There you have a very good size-up of the entire situation today. There is not much room for pessimism in this situation.

"And now for the fine paper situation. I have secured my figures from the writing paper association so they are accurate. So far this year from January 1 to October 1 orders averaged 86 per cent of our normal tonnage. Production of mills was 93 per cent of normal tonnage. Shipments were 90 per cent of normal tonnage. Some may say that paper is stocked up. The stock at the mills is just a 34-day supply. On high grades it takes 30 days to get paper in the process of manufacture. It is common knowledge that the printer no longer carries stock in his place so this 93 per cent production and 90 per cent shipment must have gone through to the consumer.

"An unusual feature in the situation occurred this summer. The strike in Holyoke, Mass., shut mills down for 40 days. This made a shortage in paper of about 30,000 tons. In the face of this production ran high.

"Now about the cost of manufacturing fine paper. There are four major elements in the manufacture of paper: (1) labor; (2) pulp; (3) rags; and (4) coal. Fully 87 per cent of the cost of making a pound of paper is labor. That is, starting with the logs in the forest. Labor is today 16 per cent below the highest peak, which was the year following the war. When you talk about reducing the cost of paper manufacturing, you must reckon with that 87 per cent. And there does not seem to be any change in sight. There seems to be no lowering of the level of the price of pulp. A very large percentage of mills never paid a high price for pulp. Those producers of pulp whose price was higher than the level some months ago have come down to that level. I think that pulp has about reached the bottom. There is no relief in sight on the coal situation. No prospects are in sight for lower price on cotton so the price of rags will not go lower. Therefore, considering all these factors, there seems to be no prospects of lower cost of manufacturing paper."

Coarse Paper Situation Much Improved

Following Mr. Raybold a discussion was slated on the coarse paper situation but a well-known producer of that line who was to have presented the subject, was called out of the city suddenly. President Stokes proceeded himself to outline briefly the conditions of the market and the outlook for the future. He said that the percentages of orders, production and shipments in the coarse paper industry were nearly the same as those recited by Mr. Raybold for the fine paper branch. There may be some slight differences in conditions in both, but the same differences prevail in the cost of manufacturing coarse paper as in fine paper. There is no reason to believe that the price of wood will go lower. The destruction of timber at the terrific pace of recent years by fires, bud worms, etc., and the continuance of the pulp embargo leaves no reason to expect a reduction in pulpwood prices and every reason to believe they will continue to advance. Another reason is that railroad charges on shipments of wood become greater each year as the front line of the forests recedes.

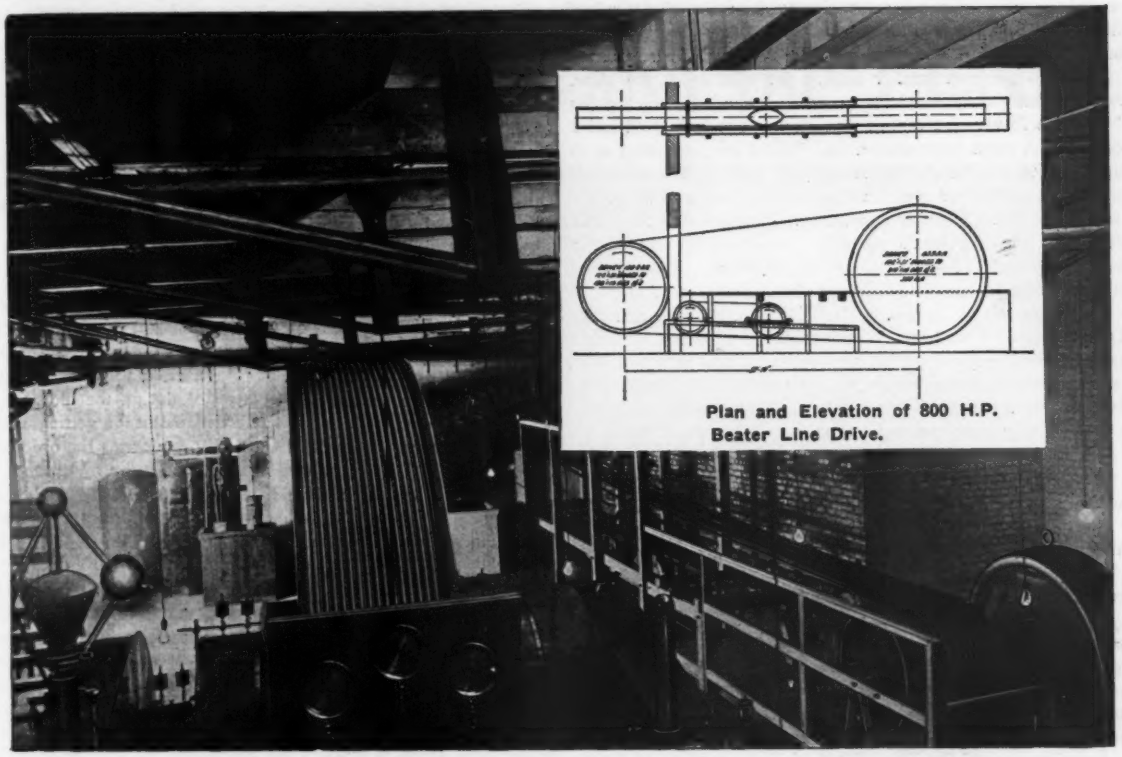
The Outlook from the Merchant's Viewpoint

The "Situation as Seen by the Merchants" was the topic upon which J. A. Carpenter, Kansas City Paper House, Kansas City, Mo., spoke following President Stokes. Mr. Carpenter stated that there are three classes of men in the paper line: (1) those who cut prices, without any knowledge of costs or a business policy; (2) those who have a semi-cost system and a semi-business policy; (3) those who know their costs, have a fixed price, a fixed quality of merchandise and customers who want this merchandise. The last, Mr. Carpenter said, were the ones who are and will be getting the largest amount of business.

The value of such a joint session between the American Paper and Pulp Association and the National Paper Trade Association was strongly emphasized by Mr. Carpenter. He said that in such gatherings the problems of the paper industry could be solved more readily.

The situation in the East has been much more satisfactory than in the Central West. Labor is employed at high wages, there is a demand for high class goods and money is plentiful. This does not hold true in the Central West. The Western conditions are better than in either the East or Central West.

Mr. Carpenter stated that a questionnaire was sent out this year



Plan and Elevation of 800 H.P. Beater Line Drive.

One of three Dodge rope drives installed in 1913 still going strong and good for years to come

It was a case of new belts or a rope drive with the Monarch Mill of the Allied Paper Mills. Here is what decided them on the Dodge system of rope driving. It might decide you.

Converting the flywheels to sheaves by means of hardwood lagging and the necessary ropes, etc., practically equalled the cost of new belts—but—when replacements were considered the ropes represented an investment of about one-eighth as much as would be necessary to buy new belts.

The three drives aggregating 1200 H.P. have been operating continuously since 1913. The Chief Engineer says:

"The drives are still operating in a satisfactory manner. We have every reason to believe that from its present appearance and performance that it is still good for a number of years."

Dodge rope drives are equally well adapted for simple or intricate situations and can be successfully used under conditions far beyond the range of belting practice.

Submit your problems to Dodge engineers—they will prepare practical recommendations on request.

Complete Power Equipment for Paper Mills.

The complete Dodge line includes everything for the mechanical transmission of power—pulleys, pillow blocks, gearing, clutches, collars, couplings, etc.—stock sizes from your local dealer—special equipment on order through branches.

DODGE

POWER TRANSMISSION MACHINERY

New York
Philadelphia
Pittsburgh
Boston
Cincinnati
Newark

DODGE MANUFACTURING CORPORATION

General Offices: Mishawaka, Ind. Works: Mishawaka, Ind. and Oneida, N. Y.
Dodge Manufacturing Company of Canada, Ltd., Toronto and Montreal

Chicago
Atlanta
Minneapolis
St. Louis-Houston
Seattle
San Francisco

to a certain number of paper companies to determine the trend of conditions in the industry. One question was, "How were stocks on October 1 as compared with last year?" To this 33 per cent replied larger, 16 per cent smaller and 51 per cent about the same. Another question was "What is the outlook in your territory for this fall?" To this 78 per cent replied fair, 21 per cent very good and 1 per cent bad. A third interrogation was "What are your ideas as to the paper market this fall?" Those replying were divided thus: 30 per cent declining, 68 per cent firm, and 2 per cent advancing.

In conclusion Mr. Carpenter expressed his opinion that the paper situation from the merchant's viewpoint was decidedly promising and with all related industries proceeding vigorously there was no reason why conditions should not become better every day.

The address of W. A. Durgin, of the Division of Simplified Practice, Department of Commerce, Washington, D. C., was a straightforward plea for the simplification of paper sizes and varieties. He came as the personal representative of Secretary of Commerce Herbert Hoover. Mr. Durgin illustrated his talk and drove home his points convincingly with stereopticon slides.

He opened his address by declaring that $10,000,000,000 could be saved in this country each year by a simplification of manufactured products.

Mr. Durgin pointed out that the process was not called standardization but simplification because American business disliked anything bordering on the elimination of individuality. Secretary Hoover impressed the fact that it must be called simplification. And Mr. Durgin further declared that when simplification was put into practice all advertising would become more national in its scope.

Simplified practice, Mr. Durgin asserted, will decrease stocks, production costs ultimately, selling expense, misunderstandings, investment, decrease all costs to the user, increase turnover, stabilize employment and make delivery prompt.

Seven service steps of the Department of Commerce for assisting in waste elimination and simplification of practice were outlined as follows: (1) Getting the start; (2) fixing the facts; (3) developing the application, by arranging conferences; (4) broadcasting the action; (5) "selling" the purchasers; (6) certifying values, by publication of recommendations; (7) following through.

In the paper industry, Mr. Durgin pointed out the almost endless variety of sizes of literature printed and stated this could be reduced materially. He asked the paper industry to try out simplified practice for one year. He was certain that if once tried, that in simplified practice the industry would find the real means of stabilizing the paper business, get greater profits and improve the service to the country.

Immediately following Mr. Durgin, John Sullivan, secretary-treasurer of the Association of National Advertisers, Inc., spoke on "Simplification of Paper Sizes," stressing not only the importance of it to industry and its saving, but explaining some of the steps already taken to make it a reality. Mr. Sullivan has long been an advocate of simplified practice and in his position in such a large organization of advertisers he has been working hard for the accomplishment of it.

Following the report of the Joint Committee on Simplification and Standardization, a resolution was passed by the convention that the entire industry would work together with the consumers of paper to simplify the practices now prevalent within it.

Joint Luncheon a Great Success

At 1:30 o'clock following the morning session, a joint luncheon of the American Paper and Pulp Association and the National Paper Trade Association was held at the Drake Hotel. President Stokes of the American Paper and Pulp Association presided throughout. A goodly number of those who attended during the morning were at the luncheon and it was an effective means of getting both the organizations closer together. Good fellowship was the order of the affair.

The speaker was C. H. Markham, president of the Illinois Central Railroad. Mr. Markham is a close student of business conditions from every angle, but more especially from the standpoint of transportation.

He said labor conditions on the railroads of the country are about as satisfactory as managers could hope to have them, and if the workers and officials are given free opportunity without troublesome or unfair legislation confidence will be restored, and the public will put their money in railroad investments the same as in any other securities. He never has known a time when there is a better understanding of conditions affecting the railroads on the part of the public than there is today. He attributed the change in a great measure to the frankness of the railroads in telling the public of their problems.

Mr. Markham stated that complaints about freight rates are few as compared with former days. This is true even of the farmers and those who represent them and the reason is that they are getting more money for their crops.

Mr. Markham explained the increased costs of all that enters into transportation and the operation of railroads and intimated that the possible bit of danger in the situation is that when Congress meets it is possible there may be efforts on the part of certain gentlemen in high places to do something with the transportation act. He said that at the present time the railroads are giving the public the best service they ever had and will continue to do so if given the opportunity.

NATIONAL PAPER TRADE ASSOCIATION MEETS

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, October 16, 1923.—The Wrapping Paper Division of the National Paper Trade Association held its semi-annual meeting at the Drake Hotel last Wednesday morning, the session being called to order at 10:30 o'clock by Chairman J. A. Carpenter.

In his address of welcome, Mr. Carpenter dwelt on the need of proper information for the division and of closer co-operation. "I am convinced," he said, "that we have got to be more and more scientific in our business. The man who knows his cost of doing business is the one who seems to be making the profits."

Secretary W. C. Ridgway submitted the report of the meeting of the Board of Directors. The report stated that the same assessment had been levied for this year as last. The board also recommended the adoption of a resolution endorsing the efforts of the Bureau of Standards to the end of standardization and simplification of the paper business, and pledging unqualified support to the effort.

The report was accepted and the resolution adopted. Assistant Secretary C. K. Higgins reported on the collection service that had been rendered in the National Association by the division, stating that, from April to September, $17,749.43 had been collected for the members.

Talk on Market Conditions

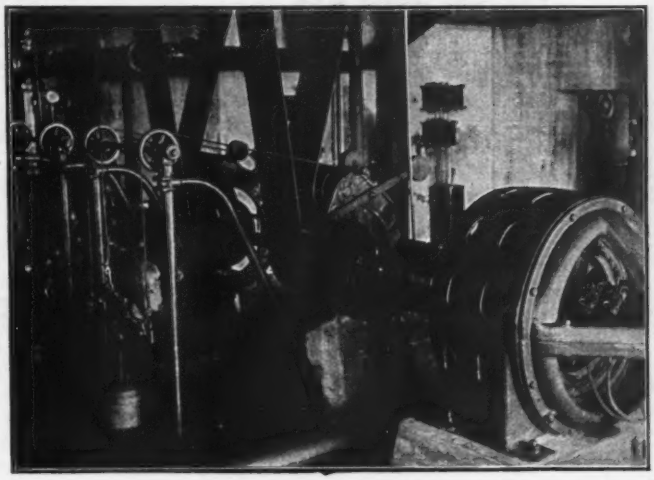
Lawrence E. Nash, manager of Sales of the Nekoosa-Edwards Paper Company, addressed the meeting on "Market Conditions and the Future of the Paper Business." He called attention to the fact that the wrapping paper industry is a secondary industry and that it is directly dependent upon general business. "Business is better than we believe it is," he said. "We have got everything that we need for active business. You have cleaned up stocks; you have purchasing power; you have one hundred and ten million people brought up to a standard of living that is higher than any country in the world, higher than anything they have seen before. That is the situation that I see existing here today."

A rising vote of thanks was given Mr. Nash.

John R. Mauff next spoke on the "Paper Industries Exchange."

The BEATER—and the LENIX

A NEW paper mill in Pennsylvania has just installed motor driven beaters with LENIXES, as illustrated. This adds another to the list of mills now using this method of drive.



When two or more Beaters are driven from one motor, the LENIX gives an ease and independence of operation of the individual Beaters that is not obtainable by any other means of driving several units from one motor.

One of the Beaters may be stopped without interfering with the others. Uneven stretch of the belts is taken up automatically by the LENIXES, eliminating the stops usually made to shorten new belts, and increasing the arc of contact on the motor pulley.

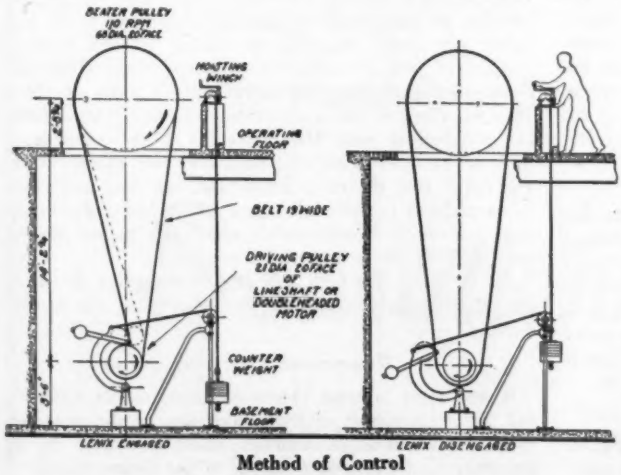
The motor and LENIXES are located on the floor below the Beaters, giving an operating floor free of encumbrances.

Wherever belts are used for the transmission of power the LENIX will improve the drive.

Booklets

"Saving Slippage and Space" and
"The Lenix Drive in the Paper Industry,"

are interesting. Send for Copies.



Method of Control

Five Points

1—The Lenix increases the arc of contact between belt and pulley.

2—The Lenix maintains constantly and accurately the proper tension in the slack side of the belt.

3—The Lenix saves floor space, building space and belting because of freedom in pulley locations.

4—The Lenix saves in bearing friction, lubrication and renewal of bearings because of reduced bearing pressure.

5—The Lenix permits the use of less expensive, high speed and high efficiency motors or generators because of the higher pulley ratios.

F. L. SMIDTH & CO.

Engineers

50 Church Street **New York**

He devoted twenty minutes to reviewing the accomplishments of the Exchange to the present time and to describing its manipulations.

Mr. Schoenbucher gave an interesting talk on a new system of cost accounting which was illustrated by various charts. The meeting then adjourned.

Fine Paper Division Meets

The semi-annual meeting of the Fine Paper Division was held at the Drake Hotel at 2 o'clock Wednesday afternoon, with W. F. McQuillen occupying the chair in the absence of President Fritz Lindenmeyr, who was unable to be present on account of illness.

Secretary W. C. Ridgway made his report for the Board of Directors. A similar resolution as was presented to the Wrapping Paper Division was presented recommending endorsement of the efforts of the Bureau of Standards. The resolution was adopted.

Reporting for the Executive Committee, Mr. Ridgway announced the fact that the committee had resurrected the old war on the printing of stamped envelopes by the Government. The executive Committee recommended that the division stand behind the demand that the Government cease the printing of stamped envelopes and that Rose Andrews, who led a former fight on the same subject, be appointed chairman of a committee to represent the association and that he be given power to appoint such members as he desired to serve with him on the committee.

Chairman McQuillen told of his experiences years ago while serving on the committee which fought the stamped enveloped printing practise.

The meeting concurred in the recommendation of the Executive Committee.

What a Big Fire Taught Him

Morgan W. Thomas, vice-president of the Garrett-Buchanan Company of Philadelphia, addressed the meeting on the subject of fire insurance and important facts that he had had impressed upon him as a result of the recent disastrous fire his company experienced.

In closing his address he made the following points:

Insure to your full value, and a trifle more as a margin of safety.

Keep an efficient perpetual inventory.

Always include freight, hauling and handling charges in insurable values.

Don't forget your allowances for depreciation.

Place your insurance with a reputable broker whose policy is to place your risks only with the high class old line companies.

Very feelingly, Mr. Thomas referred to the treatment he received at the hands of his competitors during his period of trial. He said:

"We found the most valuable insurance policy we held was one which can never be measured in dollars and cents. Staggering under a loss of three-quarters of a million dollars, our stock completely unsalable, and not knowing which way to turn, we discovered that we held a coverage which we never before had given consideration. This insurance was the friendship and co-operation extended by our competitors in the paper trade. Through their chivalrous action in placing offices and inventories at our disposal, we were not only enabled to stay in business, but in the three months immediately following the fire our sales showed a healthy increase over the corresponding period of the previous year. We would publicly express our appreciation to the Philadelphia Paper Trade Association. We feel that we owe them a debt of gratitude which we shall never be able to repay."

Trade Conditions Discussed

Mr. Schoenbucher repeated the address on cost accounting which he had given in the morning before the Wrapping Paper Division.

The meeting closed with a very free and interesting discussion of trade conditions in different sections of the country.

WOODLANDS SECTION MEETS

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, October 15, 1923.—The Woodlands Section of the American Paper and Pulp Association held its sessions on Tuesday morning and afternoon of last week and the growing importance of this branch of the industry was manifested in the attendance at the meetings and the interest shown in the talks given and the discussions which followed. The importance of wood to the industry was more forcibly placed before the members of the Woodlands Section at this meeting than has been at any previous meeting.

What Reforestation Should Accomplish

Dr. Raphael Zon of the United Statest Forest Service who has recently taken charge of the Lake States Forest Experiment Station gave a most instructive and enlightening talk on what the United States should accomplish by reforestation and reclaiming non-productive lands. He stated that this country was the consumer of over fifty per cent of the world's timber. He prophesied that the "Wood Age" period within a few years would appear among the industrial cycles—the same as steel, concrete, etc.

Much Good Accomplished

C. W. Hurturbis, chairman of the meeting, in his opening remarks stated: "Notwithstanding the organization is but three years' old it was his opinion that much of great importance to the industry has been accomplished. It was apparent that all in attendance at the meeting realized that the proposed Canadian pulpwood embargo will have the effect of forcing an appreciation upon this country of what must be done in the matter of intensive forestry."

B. T. McBain Speaks

B. T. McBain of the Nekoosa-Edwards Paper Company in discussing the forestry situation emphasized the necessity of adopting universal fire prevention methods and urged the members to exert their influence among their state representatives to reduce the taxation on non-productive lands which though of no agricultural value, are easily adaptable for timber growth. Owing to the inability of John E. Alexander, president of the Nekoosa-Edwards Paper Company personally to present his paper on the "Use of Decayed Fibre in the Manufacture of Pulp," Mr. McBain, who has collaborated with Mr. Alexander in the experimental work thus far carried on, outlined what they had already accomplished. He stated that the investigation had not been completed owing to an accident in their laboratory which had temporarily delayed their arriving at definite conclusions, though he and Mr. Alexander were satisfied the problem had been solved.

An invitation had been extended to Canadian foresters to discuss the "Canadian Pulpwood Embargo" but the invitation was declined.

Recommend Office for Chicago

It was voted to make recommendations to the American Paper and Pulp Association to locate the office of the secretary of the Woodlands Section in Chicago where it would be in closer proximity to the pulpwood sources of the United States.

Secretary Porter's Report

O. M. Porter, secretary-treasurer of the Association, presented the following report:

I. 1923 PROGRAM

At the Third Annual Meeting of the Woodlands Section, held at the Waldorf-Astoria Hotel, New York City, on Wednesday,

Rubber Goods of Ultimate Economy

VOORHEES RUBBER MFG. CO.

TRADE MARK

No Belt has shown the Tensile Strength, the compact, inseparable plies, the Elimination of Stretch, the Resistance to Frictional Heat and Variations of Climate, that Sensation has.

Equals leather belting in Service, Excels it on a price basis.

Try it and Prove it.

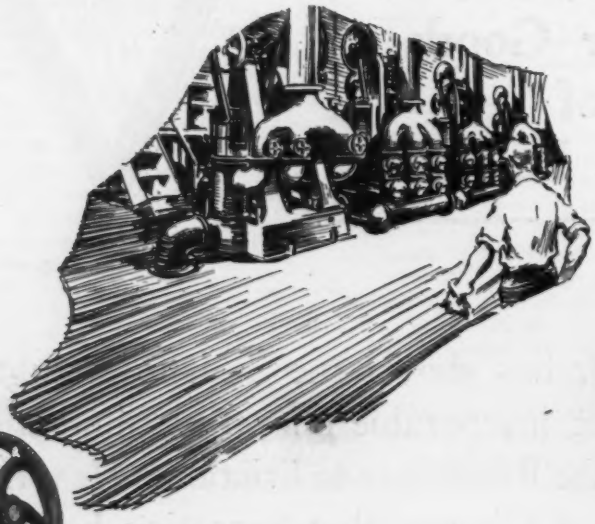
Sensation Belt

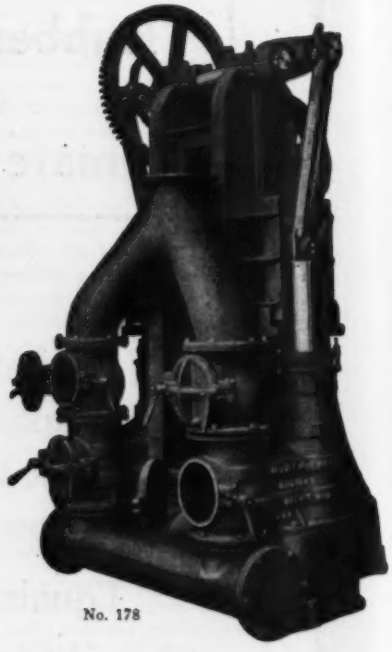
Riechman Crosby Co., Memphis, Tenn.
Syracuse Supply Co., Syracuse, N. Y.
Pacific Mill & Mine Supply Co., Los Angeles, San Francisco.
O. C. Keckley Co., Chicago, Ill.

Mine & Smelter Supply Co., Denver, El Paso, Salt Lake City.
Norvell-Wilder Hdw. Co., Houston, Texas.
Bridgeport Machine Co., Wichita, Kansas.

JERSEY CITY NEW YORK PHILADELPHIA PITTSBURGH KANSAS CITY MONTREAL

Beloit Pumps Used by World's Leading Mills





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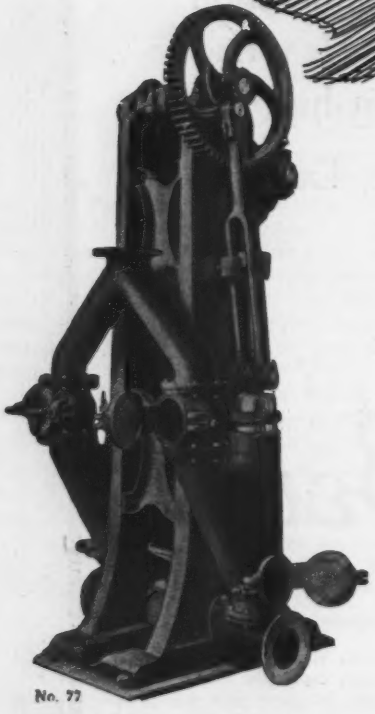


No. 77

MEETING the exacting requirements of paper makers the world over for sixty-five years has given the BELOIT IRON WORKS a working knowledge of mill problems that is held as authoritative by mill owners.

The BELOIT stuff pump of today is a striking example of this engineering skill. You can operate BELOIT pumps at top efficiency in continuous 24-hour service with the complete assurance that they will stand up under the load—perfectly.

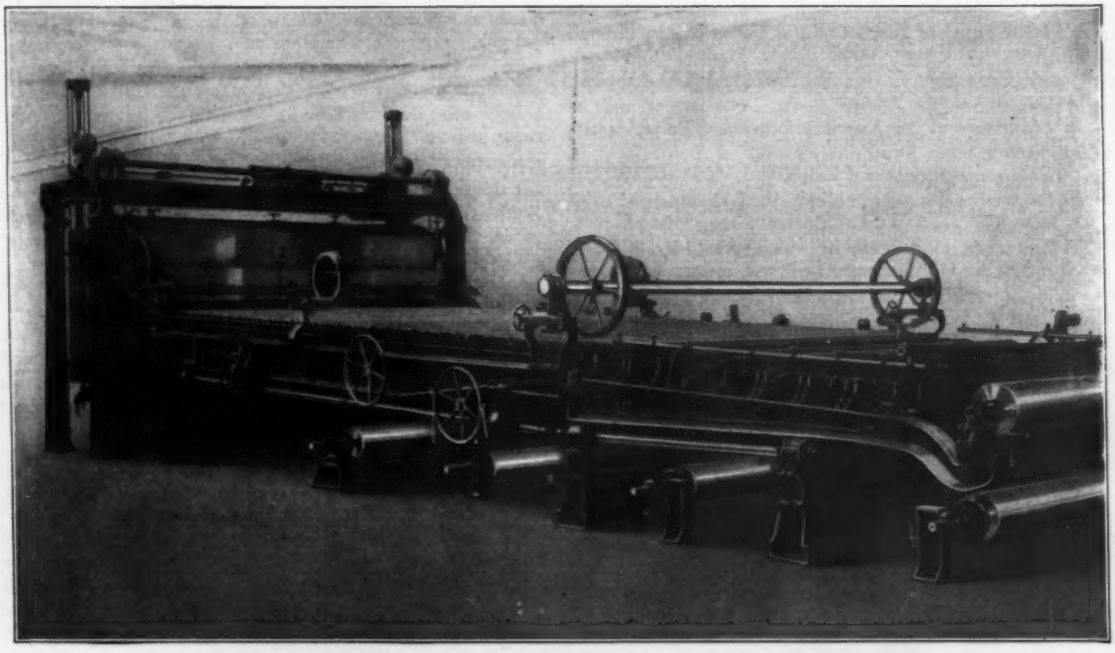
The heavy, sturdy construction insures lasting wear. Simplification of design has been perfected to the point where the fewest possible number of working parts are required. This greatly eliminates repair, wearage and breakage difficulties. If a part becomes worn or broken it is quickly replaced without the necessity of buying practically a new pump.

Send your specifications to Beloit

Beloit Iron Works **Beloit, Wis., U. S. A.**

Established **1858**

Beloit Removable and Adjustable Fourdrinier



The Double Feature Fourdrinier

SHOWING the very latest developments of the combination BELOIT ADJUSTABLE AND REMOVABLE FOURDRINIERS.

Here you see a Fourdrinier that is equipped with a shake, which never has been accomplished with a Removable type of machine. The illustration shows the Fourdrinier ready for operation and portrays the method used in raising and lowering the breast roll end. The head box and slice are undisturbed and the breast roll slides toward the couch on special slides to allow plenty of slack in the wire when the change is made and also to give room around the head box. This feature is one that has never been used by other manufacturers, being used exclusively by Beloit and fully protected by patents.

Send for special bulletin illustrating these features.

Beloit Iron Works **Beloit, Wis., U. S. A.**

Established **1858**

April 11, 1923, a number of suggestions were developed as to a program for the Section's 1923 activities.

These were subsequently considered in detail by the Section's Executive Committee, and the following accepted:

(a) A comprehensive survey of the pulpwood supplies for the pulp and paper mills of the United States.

(b) Fundamental forest education for paper mill executives, their employees and woods operators, with special reference to pulpwood decay, standards of wood measurement, and pulpwood trade customs, including a careful investigation of reforestation methods, costs and yields.

a. Thanks to the activity of certain Canadian interests in securing an authorization for an embargo on pulpwood export from Canada, the Woodlands Section has been able to complete the survey of the pulpwood supplies of the United States, through co-operation with the United States Forest Service. Funds for this work were supplied by the Committee on the Perpetuation of the Paper Industry of the United States. This report will be distributed to members of the American Paper and Pulp Association in pamphlet or other form.

b. (1) Fundamental Forest Education.

Early in the summer, conference was held at Montreal with Dr. C. D. Howe, Ellwood Wilson, Gustav Piche, Edward Beck and J. N. Stephenson, as a result of which, eventually, a handbook or manual covering fundamental forest operations will be prepared by joint effort of the interests represented by those in attendance at this conference.

(2) Pulpwood Decay.

A careful investigation of pulpwood decay, in its effect on pulp production, is being carried on by the forest Products Laboratory in co-operation with the News Print Service Bureau and the Woodlands Section of the Canadian Pulp and Paper Association. Results of this investigation will probably be available within the year.

(3) Standards of Wood Measurement and Pulpwood Trade Customs. Nothing further has been accomplished along this line.

(4) Reforestation.

The Section's report on the cost of commercial reforestation during 1923 is in your hands. This investigation will be continued with the view to developing recommendations covering methods of planting in the several pulpwood regions of the United States, and subsequent protection and management, together with figures of average costs and anticipated yields.

II. Financing the Section

You will remember that the recommendations of the Executive Committee, as regards financing the activities of the Section, were approved and adopted at the Annual Meeting of the Section last April. This called for the distribution of Woodlands Section material, without membership charge, to representatives of companies holding membership in the American Paper and Pulp Association, as a part of that Association's service to its members. The $10.00 and $5.00 membership dues for Active and Associate Membership were continued for non-members of the American Paper and Pulp Association.

A brief statement of the Section's finances might not be out of place. Since April 1, 1923, we have received $355.00; our expenditures have amounted to $1,611.16. The apparent deficit will be met by the American Paper and Pulp Association, which will provide sufficient funds for the operation of the Section, on our present budget, for the balance of the fiscal year ending March 31, 1924.

III. Recommendations of the Secretary

a. Use of the Section

The Woodlands Section of the American Paper and Pulp Association serves a very definite purpose, in that it provides a clearing house for general information on the problems of the woods operations of the paper industry. The Section welcomes requests for information from its members. Where such data are not in the Association's files, the requests are referred to individuals or the membership at large, and the information received made available to the entire membership.

b. Forest Planting and Forest Management

It is my opinion that, during the past three years, our interests have covered too broad a field, and that the Woodlands Section should devote its activities largely to the accomplishment of one or more definite projects, the solution of which would be of general value to the woods departments of the paper industry.

Probably the largest single problem confronting the paper industry today is adequate supplies of pulpwood. The proposed Canadian embargo only intensifies this problem. We are not prepared to state what effect the enforcement of this embargo would have on Canada's forest problems. It is our belief, however, that the forest problem of both Canada and the United States could, in a large measure, be solved by adequate fire prevention. After this, come reasonable forest taxation, some form of practical forest management, and reforestation.

I suggest that, for the balance of the present fiscal year, the Section devote its funds and activities to the further development of our Reforestation data. This question was put squarely up to us at our last Annual Meeting by Mr. George N. Ostrander of the Finch Pruyn Company, who asked—"Will reforestation pay, at a cost of from $15.00 to $20.00 an acre, and a rotation of fifty years, on the basis of any known acts or prospective values?" Sooner or later, the Woodlands Section of the American Paper and Pulp Association will be called upon to answer that question; and the sooner we are in a position to do so, the better it will be for all concerned.

Is the Paper Industry Practicing Forestry?

Secretary Porter delivered the following address:

Probably the average paper manufacturer would answer "No." And with season, when we stop to think that from 60 to 80 per cent of the paper mills of New York, New England and the Lake States are entirely dependent on purchases for their supplies of pulpwood; and further, that the Paper Industry of the United States imports from 20 to 25 per cent of its annual pulpwood requirements.

And yet pulpwood is the basic raw material of the Paper Industry. It is becoming scarce and high-priced. The Paper Industry has already reached the stage when it *should* grow pulpwood. It is rapidly approaching that stage when it *must* grow pulpwood. Many of the pulp and paper mills own extensive areas of forest land. Some of them employ trained foresters. All of them employ technically trained, skilled mill superintendents and engineers to maintain the grade and character of their products and the operating efficiencies of their mills. The time has come when all pulp and paper mills owning forest lands can afford to employ a trained forester to protect and develop their timberland holdings. I am amazed to find companies that have made heavy investments in timberlands, doing little or nothing to protect or develop them to a sustained yield basis.

What is Forestry or Forest Management, as applied to the timberlands of pulp and paper companies? In the first place, it is *fire prevention;* careful organization of the operating force and co-operative arrangements with town, county, state and federal protective organizations, to insure rapid and effective response to any fire alarm. It means effective patrol and fire suppression. No less an authority than Gustav Piché, Provincial Forester of Quebec, has stated that for every tree utilized in Canada 19 are burned. That is an appalling annual fire loss.

Forestry for paper companies means a *careful reconnaissance* of the company's timberland holdings to show:

1. What the land is producing, by accurate cruises or estimates;

USE THE WASTE HEAT FROM THE PAPER MACHINE TO HEAT AND VENTILATE YOUR MILL

Have you considered the BRINER ECONOMIZER as in the experimental stage?

Do you realize that it is one of the greatest contributions to paper machine development that has taken place and is long past the experimental stage?

We do not publish lists of installations but believe you will be surprised to find how many leaders in the paper industry have already installed these economizers.

We will gladly send you list of installations.

"Economizer Installation in Large Book Mill in Northern New York"

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In Canada, ROSS ENGINEERING OF CANADA, LIMITED, New Birks Building, Montreal

2. Where it is, by type maps;

3. How fast it is growing—in other words, the annual increment.

These data will enable the mill executive to plan for intensive forest management, or further land and pulpwood purchases in accord with the mill's annual capacity.

It is my opinion that a pulp and paper company, owning extensive timberlands, could well afford to turn an experienced forester loose on their holdings with the view to familiarizing himself with them, developing a system of fire prevention, and determining as accurately as possible what the land has, is and is capable of producing annually.

After this, comes *Forest Management.* I am also convinced that intensive forestry on extensive areas in the northeast will pay substantial dividends. Much of the original stands in these regions was a mixed growth of hard and soft woods. Lumbering, fire, insects and fungi have largely removed the soft woods, leaving in their place an uneven aged crop of unmerchantable hardwoods. These are encumbering the ground, and prevent satisfactory growth of the understory of more or less suppressed advanced reproduction of pine, spruce and fir.

Girdling, to kill the hard woods; thinnings, etc., would liberate those valuable pulpwood species, and increase the yield per acre per annum by at least a quarter of a cord; while at the same time, materially shortening the rotation. Money spent on such operations would pay real dividends, in that it would *insure* heavily stocked stands of merchantable pulpwood species.

Why isn't that done? Our foresters have the necessary knowledge and experience. The companies must have the pulpwood. The price of pulpwood grows yearly, and the supply diminishes. Why cannot Management see the wisdom of insuring the continuous operation of its plants by reasonable forest expenditures?

Is the Paper Industry practicing forestry? Yes, to a limited extent. Replies to a recent questionnaire by the Woodlands Section disclose some interesting facts as to forest practice in the several pulpwood forest region.

SALESMEN'S ASSOCIATION ENJOYS TWO EVENTS

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., October 16, 1923.—The Salesmen's Association of the Paper Industry enjoyed two special events during "Paper Week," the first being a luncheon Wednesday noon and the other a banquet Wednesday evening. Prominent speakers were provided for both occasions.

The luncheon was served at 12:30 o'clock in the Club Grill, Hotel Drake, and the program following was presided over by the president of the Association, J. L. Fearing, who welcomed the members and introduced Dr. E. O. Merchant as follows:

"In the first place, gentlemen, I want to welcome you to Chicago. It is very gratifying indeed to have such a large crowd of gentlemen engaged in the sale of paper here, and I am very proud that we have turned out such a large gathering.

"The thing that is paramount in our minds today is what is the business situation going to be tomorrow and next day and in the future. There is no one better qualified to give us authentic and up-to-date information on that subject than Dr. E. O. Merchant of the George H. Mead Company. He will talk to you. Gentlemen, Dr. Merchant."

Dr. Merchant on Business Forecasting

Dr. Merchant spoke on "Business Forecasting" and, in the course of his talk, said:

"As you all are probably aware, this year has been an open season for business forecasters. There never was a time when the experts on business conditions disagreed so widely as they do today. Right now you have forecasts for next year ranging from a big boom year on the one hand to a year of severe depression on the other, and these predictions are not coming entirely from amateurs, they are coming from college professors, business services, and men who give a lot of time and study to this thing. For this reason you can see it would be rather rash for me to make positive predictions about what is going to happen. What I intend to do is to analyze the situation for you, pointing out the favorable factors and the unfavorable factors as they exist today without any coloring, and let you come to your own conclusions.

"The first thing I want to talk about especially is the subject of business cycles. Now the word business cycle does not mean as much as many people attribute to it. About all the word means is that you will eventually come back to the starting point. We all know it does not need to be proved that business fluctuates from prosperity to depression and back to prosperity, so you can start at any point you want and you will eventually get back to it. That is all the word "cycle" means. It does not mean that these fluctuations or swings of business have any predetermined length or predetermined intensity. If they did, all we statisticians would have to do would be to work out a mathematical formula and sell it to you for ten dollars a head and you could do your own forecasting.

"The paper industry is a cyclical industry. That is it fluctuates about in line with general business.

Lessons From Past History

"If we trace the history of the paper industry through the past few years I think that perhaps it may help us to see what we can do as an association of salesmen to help stabilize conditions. You all know what happened in the paper industry in 1920. Buyers were out after paper and were willing to pay any price for it. The demand was tremendous. It looked like the mills couldn't take care of it. The salesmen were as badly deceived by appearances as their executives. They thought they had the world by the tail, selling was pretty easy. When the smoke cleared away it was found that everybody was stocked up with paper; the mills were stocked with raw materials and new plants were being built everywhere. When we came into this period of liquidation and depression these stocks had to be used up and while they were being used up production was less than consumption. During the year 1921, a salesman couldn't sell a customer a week's supply of paper to save his neck. But after we entered the period of revival, buying picked up again and during the last quarter of 1922 and the first of 1923, business was generally pretty good in the paper industry; production was expanded, buying was active, and I think if we had all the facts to show it some over-production and some increase in inventories took place. Then when the sudden reaction came and business sentiment was reversed, those inventories were reduced and while that was going on the orders necessarily were few and far between. Consequently in some branches of the paper industry conditions were quite dull this summer.

"The paper industry today like business in general is still paying for the unnecessary expansion of plant capacity following the boom of 1919 and 1920. It is also experiencing increasing imports and decreasing exports in some grades.

"If, as now appears quite certain, general business is on the upgrade again, we can all be sure that the paper industry will go along with the rest of the procession. If we have better business this fall and winter generally, the paper industry is going to share in it. So to bring this talk to a conclusion, the message I want to leave with you is that if you gentlemen in this association will go to your customers and tell them that conditions are essentially sound, and that there is no reason for all this timidity and apprehension, you can help turn the wheel in the right direction. Let's go out from this meeting, put our shoulders to the wheel and PUSH it over."

ALVAH MILLER TOM T. WALLER ARTHUR C. HASTINGS
EDWARD A. WESTFALL NATHANIEL L. MILLER

H. G. CRAIG & CO.

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Banquet a Gala Event

The banquet on Wednesday evening took place in the magnificent ball room of the Drake Hotel at 7 p. m. It was an appropriate climax to the business session of that body which held forth during the afternoon.

While the affair was designated principally for those who "beat the bushes," it was open to all convention attendants and the entire rank and file of the paper industry was well represented. Chicago's delegation was a conspicuous one. Not only salesmen, but executives of Windy City houses were present to contribute their part in making the banquet a complete success. And the ladies were there, too, most of them being wives of Chicago men. In all, there were about 350 who sat down to the banquet tables.

The meal itself, was a most delectable array of delicacies, served in typical Drake fashion. It put the dinners in an especially happy mood for the ensuing proceedings.

George K. Gibson Prominent Figure

A prominent figure during the evening was George K. Gibson, salesmanager for the Chicago territory for the Wausau Sulphate Fibre Company, makers of Mosinee kraft paper. Mr. Gibson is a former president of the Salesmen's Association and is one of the best known members of the fraternity. It was Mr. Gibson who arranged the program of the evening, securing two nationally known speakers to address the gathering on "General Business Conditions" and "Americanism." These were respectively George E. Roberts, vice-president, National City Bank, New York City, and Hon. R. J. Files, Ft. Dodge, Iowa. Besides this, Mr. Gibson moved sprightly among the groups outside the banquet hall beforehand, and from table to table, later on, making sure that everybody was acquainted with his neighbor.

When all the banqueters had taken their places and before any were seated, President J. I. Fearing, of the Salesmen's Association, called upon Mr. Gibson to ask Divine guidance in the matters of the evening. An orchestra "extraordinary" provided the musical entertainment, being encored frequently on some of its beautiful renditions.

Introduces George E. Roberts

President Fearing, as toastmaster, prefaced his introduction of Mr. Roberts by reviewing the history of the Salesmen's Association, tracing its development from an almost insignificant beginning, through the various stages of development down to the present time when it is one of the outstanding factors of the paper industry.

Mr. Roberts who spoke on "Economic Conditions" made the point that prosperity depends on balanced relations between industries and that there is a normal equilibrium which must exist before prosperity can come. As the world comes back to normal conditions we must expect to readjust our relations to it, he declared.

An Appeal to Patriotism

The address of Hon. R. J. Files was a dramatic appeal to the patriotism of every business man in America. He besought every one of his auditors to consider it his individual duty to these United States to practice true Americanism, not only upon certain occasions, but in every activity of life, and to exert personal effort to combat radicalism and race hatred. To say it was inspirational is a mild statement. It made a profound impression throughout the assembly.

Consolidated Paper Corp. Buys Plant

ANACORTES, Wash., October 15, 1923.—The Consolidated Paper Corporation of Tacoma has purchased the Russia cement plant from J. E. Trafton and G. W. Krebs and will operate a paper mill. The company has been operating a business for the purchase and sale of waste paper and will specialize in the manufacture of certain classes of paper and waterproof stock for paper boxes, roofing paper, car linings and wrappings, all from waste.

BANQUET OF THE SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, DRAKE HOTEL, CHICAGO, OCTOBER 10

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U. S. PULP PRODUCERS ASSOCIATION MEETS

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, October 15, 1923.—O. M. Porter, secretary-treasurer, presented the following report at the meeting of the U. S. Pulp Producers Association held here during "Paper Week":

You are familiar with the organization of the U. S. Pulp Producers Association on January 1, 1923. Our membership then consisted of 29 mills. We now have 28 mills, having lost the Consolidated Water Power & Paper Company and the Nashville Pulp & Paper Company by resignation, and increased our membership by the Flambeau Paper Company.

Objects of the Association

As stated in the Secretary's report, submitted at the First Annual Meeting of the Association last April, the purposes of the Pulp Producers Association are as follows:

1. To distribute to members regularly and promptly all the available statistical data regarding the production and importation of the various grades of wood pulp and pulpwood.
2. To provide a means for concerted action by pulp manufacturers in matters of tariff, taxation, legislation, etc.
3. To further the uniformity of cost-finding methods in the pulp industry.
4. To increase the effectiveness and economy of pulp production.
5. To encourage social relations and strengthen business confidence among members.

Statistics

You are familiar with the statistical reports submitted weekly, bi-weekly and monthly, on pulp production, orders, shipments, stocks and imports.

Since the Federal Trade Commission discontinued its Monthly Summaries of the Pulp and Paper Industry, we have been furnishing similar data from the pulp mills of the country for the American Paper and Pulp Association's monthly Statistical Review. We have been gratified at the increase in the number of mills reporting to us. We feel that eventually we will be in a position to make accurate returns of the statistical position of the pulp industry of the United States, and that even now our figures, though based on not more than 75 per cent of the total tonnage of the country, indicate very satisfactorily the trends and changing conditions of the pulp situation.

Charts

You have in your hands copies of charts which we have prepared, indicating the pulp, paper and pulpwood situations of the country. I would be glad to distribute similar charts monthly if you so desire, and would appreciate discussion of this topic.

Operating Efficiencies

You also have a sample Operating Efficiency Report, compiled from figures of June production, as submitted by 11 mills. You would be interested I think, in comments which we have received in response to our effort to secure reports from all our members:

"Outside scope of Association. Of no value to established manufacturers. Would do more harm than good."

"Do not apply to our mill."

"Submitting information to News Print Service Bureau."

"Too busy."

"Would be of no benefit."

I am sure that these Operating Efficiency reports could be developed to a point of extreme value to every pulp mill manager. I appreciate the fact that this service is being rendered by the News Print Service Bureau, at a price, to both its members and non-members. We have not sufficient funds to develop the work under the direction of a pulp and paper engineer, as is done by the News Print Service Bureau. I know, however, that, through a co-operative exchange of information among the members of this Association, we can develop report of equal value to those of the News Print Service Bureau, and at a very much less cost per member.

Conversion Cost Data

You also have a sample Conversion Cost Report. Is it necessary to point out to you, who are so familiar with the details and management of a pulp mill, the value of these combined Operating Efficiencies and Conversion Cost Reports? One shows where your operation is losing money in competition with similar operations by your competitors. The other enables you to put your finger absolutely on the weak spots of your production, and correct them accordingly.

It should not be difficult to have these reports prepared monthly in your several offices. If you do not want them, well and good: and we will discontinue this activity. My personal opinion, however, is that the Pulp Producers Association must develop forms of service along these lines, to be of value to its members, and to enable us to secure increased membership; thus making our statistical reports and charts of so much greater value.

Recommendations

Your Secretary has no recommendations to make. You are familiar with the circumstances under which we were invited to take Mr. Bishop's place as Secretary of the Pulp Manufacturers Association, and subsequently to attempt the development of the U. S. Producers Association. During this period, we have secured statistical data from a steadily increasing number of mills. This is making the Association's reports of increasing value. We have endeavored to keep members of the Association informed of changing conditions here and abroad, which might affect the business of pulp production. We suggest regular Operating Efficiency and Conversion Cost reports as a means of tangible service, the results of which will be reflected in the balance sheets of every individual member of the Association. Further than this, we have nothing to suggest, and shall be interested to learn of your pleasure as regards the activities of the Association.

Changes at Endicott-Johnson Mill

THE PAPER TRADE JOURNAL has just learned of the death of A. C. Denning, general superintendent of the fiber board mills of Endicott-Johnson Corporation, Johnson City, N. Y., for many years. Mr. Denning was always of a progressive mind and much of the success in the operation of Endicott-Johnson's own board mills was due to his ability.

Due to the increase in production Mr. Denning's responsibilities had been divided and the Old Fiberboard Mill is in charge of Mr. Hathaway and the New Fiber Board Mill is in charge of Mr. Nash. Both of these men have been with the Endicott-Johnson people for some time and will continue Mr. Denning's policies.

Gummed Paper Manufacturers Meet

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, October 15, 1923.—The establishment of a collection department was decided upon by the Gummed Paper Manufacturers Association at its meeting here Tuesday of last week.

The success of the credit bureau established a year ago, has been such that it was decided to take another step in advance by the inauguration of a collection bureau.

The association spent most of its day in discussing the problem of cost accounting. How to proceed to establish a cost committee to work out a uniform method of cost accounting was discussed in detail, but definite action was left for later determination.

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Piedmont .....West Virginia	Williamsburg .....Pennsylvania
Luke .....Maryland	Cass .....West Virginia
Covington .....Virginia	Spruce .....West Virginia

THOSE WHO ATTENDED THE CHICAGO CONFERENCE

The following is the official registration of those who attended the Fall Conference of the American Paper and Pulp Association:

A

P. M. Allen, Detroit Sulphite Pulp & Paper Co., Detroit.
C. W. Atkinson, Fox Paper Co., Lockland, O.
John W. Anderson, Empire Paper Co., Chicago.
Chas. T. Andrews, Andrews Bros. Paper Co., Penn Yan, N. Y.

B

Edward P. Bagg, Parsons Paper Co., Holyoke, Mass.
John S. C. Bailey, Continental Paper & Bag Mills, New York.
H. R. Baldwin, Hammermill Paper Co., Erie, Pa.
J. S. Beach, Stevens Paper Co., New York.
James J. Blaine, Crescent Belt Fastener Co., New York.
Henry Burgee, Neenah Paper Co., Neenah, Wis.
Thomas J. Burke, secretary Salesmen's Association of Paper Industry, New York.
J. S. Bagg, Millers Falls Paper Co., Millers Falls, Mass.
E. E. Barrett, Mead Sales Co., Dayton, O.
F. A. Beckjord, E. J. Stilwell Paper Co., St. Paul, Minn.
D. W. Bergstrom, Jr., Bergstrom Paper Co., Neenah, Wis.
J. N. Bergstrom, Bergstrom Paper Co., Neenah, Wis.
R. D. Bertschy, Miamisburg Paper Co., West Carrollton, O.
Thos. S. Bond, Appleton Coated Paper Co., Appleton, Wis.
Warren Bullock, American Paper and Pulp Association, New York City.
E. H. Burton, A. P. W. Paper Co., Albany, N. Y.

C

Charles W. Chabot, Jr., Hammermill Paper Co., Erie, Pa.
Howard L. Cheney, Srere Paper & Pulp Co., Franklin, O.
P. S. Church, G. H. Mead Co., Dayton, O.
H. J. Corwin, Ajax Paper Co., Buck Run, Pa.
J. H. Coy, Flambeau Paper Co., Park Falls, Wis.
P. A. Curtis, American Writing Paper Co., Holyoke, Mass.
Geo. J. Cadwell, American Writing Paper Co., Holyoke, Mass.
A. E. Cofrin, Ft. Howard Paper Co., Green Bay, Wis.
C. W. Collins, Cherry River Paper Co., Philadelphia, Pa.
Harry Cooper, Cooper and Cooper.
Robert Craig, University of Michigan, Ann Arbor, Mich.
S. R. Davis, Dells Paper and Pulp Co., Eau Claire, Wis.
John R. Diggs, Albemarle Paper Mfg. Co., Richmond, Va.
A. Scott Dowd, Chicago.
J. J. C. Downey, National Paper Products Co., Carthage, N. Y.

D

A. B. Daniels, L. L. Brown Paper Co., Adams, Mass.
Edward E. Darby, District of Columbia Paper Manufacturing Co., Washington, D. C.
F. M. Dickinson, E-Z Opener Bag Co., Decatur, Ill.
Ernest Draheim, Rhinelander Paper Co., Rhinelander, Wis.

E

T. D. Earle, Michigan Paper Co., Plainwell, Mich.
William S. Epply, Hammermill Paper Co., Erie, Pa.
D. C. Everest, Marathon Paper Mills Co., Rothschild, Wis.
F. J. Edmonds, Wausau Paper Mills Co., Brokaw, Wis.
W. W. Enlow, Irwin Paper Co., Quincy, Ill.
Herman Elsas, Continental Paper and Bag Mills, New York City.

F

J. L. Fearing, International Paper Co., New York.
B. A. Franklin, Strathmore Paper Co., Mittineague, Mass.
Arthur Freeman, Fort Howard Paper Co., Green Bay, Wis.
Paul S. Fiske, The Parker-Young Co., Boston, Mass.
Chas. F. Forster, Robert Gair Co., Hearst Bldg., Chicago.
B. A. French, Strathmore Paper Co., Mittineague, Mass.
E. B. Fritz, Chicago.
A. E. Fuhlage, Beacon Paper Co., St. Louis, Mo.
L. E. Fuller, Chicago.
Jos. H. Funke, F. Funke Sons Co., Evansville, Ind.

G

George K. Gibson, Wausau Sulphate Fibre Co., Mosinee, Wis.
W. K. Gerbrick, Central Paper Co., Menasha, Wis.
W. R. Green, American Writing Paper Co., Chicago.
C. F. Guild, Liberty Paper Co., New York.
Geo. B. Gibson, Wausau Sulphate Fibre Co., Chicago.
S. E. Giles, Continental Paper & Bag Mills, Kansas City, Mo.
A. E. Grosmith, Paterson Parchment Paper Co., Passaic, N. J.

H

H. C. Hanke, Rhinelander, Wis.
R. B. Harbison, International Paper Co., Chicago.
W. Lloyd Heath, H. G. Craig & Co., New York City.
Albert H. Hooker, Jr., Niagara Falls, N. Y.
C. W. Hurtubis, Hammermill Paper Co., Erie, Pa.
E. J. Hansen, McClellan Paper Co., Minneapolis, Minn.
Emil Hansen, Ft. Howard Paper Co., Green Bay, Wis.
Walter G. Hansen, Ft. Howard Paper Co., Green Bay, Wis.
E. H. Hoel, Carpenter Paper Co., Omaha, Neb.
Jas. Hood, A. M. Collins Manufacturing Co., Philadelphia, Pa.
J. P. Hummel, Hummel-Ross Fibre Corp., Hopewell, Va.
J. E. A. Hussey, International Paper Co., Boston, Mass.

I

C. I. Irwin, Irwin Paper Co., Quincy, Ill.

J

George S. Johnston, Great Western Paper Co., Ladysmith, Wis.
Frank A. Juckett, Old Colony Envelope Co., Westfield, Mass.
C. H. Jaite, The Jaite Co., Jaite, O.
H. T. Johnson, Midland Paper Co., Chicago.

K

O. E. Kiaer, Buck-Kiaer & Co., New York.
S. C. Knode, Albemarle Paper Manufacturing Co., New York City.

L

W. W. Langtry, District of Columbia Paper Manufacturing Co., Washington, D. C.
S. G. Leitch, Gummed Products Co., Troy, O.
W. H. Lloyd, Dill & Collins Co., Philadelphia, Pa.
M. H. Lund, Crystal Tissue Co., Middletown, O.
A. George Lutz, Invincible Paper & Pulp Corp., New York City.
Stanley D. Lyle, Cascade Paper Co., West Tacoma, Wash.
Saul Levy, E. Z. Opener Bag Co.
R. B. Little, Birmingham, Little & Prosser Co., Kansas City, Mo.
Malcolm B. Low, Lowe Paper Co., Ridgefield, N. J.

M

Russell S. Madden, American Writing Paper Co., Holyoke, Mass.
F. W. Main, Worthy Paper Co., Assn., Mittineague, Mass.
I. J. Marcuse, Bedford Pulp & Paper Co., Richmond, Va.
John Matthews, Jr., Bureau of Foreign and Domestic Commerce, Washington, D. C.
B. T. McBain, Nekoosa-Edwards Paper Co., Port Edwards, Wis.
G. M. McCarthy, American Writing Paper Co., Holyoke, Mass.
James Donald MacLaurin, Newton Falls Paper Co., Newton Falls, N. Y.
R. F. McElwain, Crocker-McElwain Co., Holyoke, Mass.
J. S. Miller, Jr., Mead Sales Co., Dayton, O.
Frank Mossteller, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.
M. E. Moyer, West Carrollton Parchment Co., West Carrollton, O.

N

Charles G. Neidel, American Writing Paper Co., Holyoke, Mass.
H. L. Nichols, Wausau Sulphate Fibre Co., Mosinee, Wis.
Jas. B. Nash, Nekoosa Edwards Paper Co., Port Edwards, Wis.
A. H. Nevins, Miami Paper Co., West Carrollton, O.
L. H. Nye, Eastern Manufacturing Co., Chicago.

O

M. B. Olmsted, Fox River Paper Co., Appleton, Wis.
J. W. Oakford, Cherry River Paper Co., Philadelphia, Pa.
Geo. Olmstead, S. D. Warren Co., Boston, Mass.

P

R. H. Palmore, Yellow Pine Paper Mill Co., Orange, Tex.
C. F. Post, E-Z Opener Bag Co., South Bend, Ind.
W. M. Packer, "The Hooven & Allison Co." Minneapolis, Minn.
John H. Pott, Irwin Paper Co., Quincy, Ill.

Q

D. L. Quirk, Jr., Peninsular Paper Co., Ypsilanti, Mich.

R

Francis G. Rawling, Forest Products Laboratory, Madison, Wis.
Courtney, H. Reeves, Dill & Collins Co., Chicago.
W. J. Raybold, B. D. Rising Paper Co., Housatonic, Mass.
A. C. Remley, Patten Paper Co., Appleton, Wis.
H. H. Reynolds, B. D. Rising Paper Co., Housatonic, Mass.
J. B. Rieg, Erving Paper Mills, Erving, Mass.
John D. Rue, U. S. Forest Products Lab., Madison, Wis.
J. R. Russell, Marathon Paper Mills Co., Chicago.
W. D. Randall, Champion Coated Paper Co., Hamilton, O.
R. W. Remont, International Paper Co., Pittsburgh, Pa.
A. W. Roling, Irwin Paper Co., Quincy, Ill.
Walter C. Ross, Mid States Gummed Paper Co., Chicago.

S

Henry D. Schmidt, Schmidt & Ault Paper Co., York, Pa.
J. L. Seiler, Warren Manufacturing Co., New York.
Harold B. Shepard, Concord Junction, Mass.
John B. Shepherd, Peninsular Paper Co., Ypsilanti, Mich.
U. S. Silbar, Inter-Ocean Bag & Paper Co., Chicago.
Lewis H. Sisson, Racquette River Paper Co., Cincinnati, O.
Edward N. Smith, Tuttle Press Co., Appleton, Wis.
R. L. Stevens, Jr., Stevens Paper Co., New York.
N. S. Stone, Wausau Sulphate Fibre Co., Mosinee, Wis.
Kimberley Stuart, Neenah Paper Co., Neenah, Wis.
Carlton W. Smith, Miamisburg Paper Co., Miamisburg, O.
Edward C. Smith, Nashua Gummed & Coated Paper Co., Nashua, N. H.
Henry W. Stokes, York Haven Paper Co., Philadelphia, Pa.
Ira T. Strand, Lee Paper Co., Vicksburg, Mich.
W. J. Sullivan, Grandfather Falls Co., Merrill, Wis.

T

Harold R. Telfer, Detroit Sulphite Pulp & Paper Co., Detroit, Mich.
James B. Thayer, U. S. Envelope Co., Springfield, Mass.
A. E. Tyner, A. E. Tyner & Co., St. Louis, Mo.
A. A. Tanyane, PAPER TRADE JOURNAL, New York City.
R. C. Tilden, International Paper Co.

V

F. H. Von Ullrich, New York City.
H. K. Vinton, PAPER TRADE JOURNAL, Chicago.

W

Guy Waldo, Flambeau Paper Co., Park Falls, Wis.
Thomas Compton Walsh, Hollingsworth & Vose Co., Boston, Mass.
J. M. Ward, Detroit Sulphite Pulp & Paper Co., Detroit.
A. N. Waring, Bayless Manufacturing Co., New York.
Johannes Westergaard, New York City.
B. C. Whitney, Whitney Paper Co., Wichita, Kan.
Warren Williams, Southeastern Paper Co., Louisville, Ky.
James Wilson 3d, Hooven & Allison Co., Xenia, O.
Norman W. Wilson, Hammermill Paper Co., Erie, Pa.
O. L. E. Weber, Watab Paper Co., Sartell, Minn.
G. W. Wetmore, Groveton & Claremont, New York City.
O. B. Wheeler, Diem & Wing Paper Co., Cincinnati, O.
Fred P. Whiteley, Howard Paper Co., Chicago.
Lloyd S. Wilson, Chicago.
L. G. Wood, Northern Paper Mills, Green Bay, Wis.

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Manufacturers of

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R. W. REMONT
Pittsburgh Sales Agent
1012 Farmers Bank Bldg., Pittsburgh, Pa.

W. E. MANSFIELD
Southern Sales Agent
Grant Bldg., Atlanta, Ga.

R. B. HARBISON
Western Sales Agent
111 W. Washington St., Chicago

The Company is also the manufacturer of the INTERNATIONAL CORE with PATENTED STEEL CAP specially designed to resist torsional strains.

Y

E. F. Yulke, Continental Paper & Bag Mills, Chicago.

Z

P. B. Zorn, PAPER TRADE JOURNAL, Chicago.

PAPER MERCHANTS REGISTRATION

The following registered for the conference of the National Paper Trade Association:

A

R. P. Andrews, R. P. Andrews Paper Co., Washington, D. C.
B. M. Anderson, Carpenter Paper Co., Omaha.
F. H. Albershart, Johnston-Albershart Co., Cincinnati, O.

B

A. A. Beckjord, Stillwell Paper Co., St. Paul.
F. C. Boyce, Jr., and C. W. Boyce, Wisconsin Paper Products Co., Milwaukee.
Oliver G. Baum, R. H. Thompson Co., Buffalo, N. Y.
J. G. Boshart, Peyton Paper Co., Duluth, Minn.
C. N. Bicknell, Union Paper and Twine Co., Cleveland.
Arthur W. Blackman, D. F. Munroe Co., Boston.
Alvin Bodemer, Diem & Wing Paper Co., Cincinnati.
L. R. Boswell, Minneapolis Paper Co., Minneapolis, Minn.

C

W. G. Cleveland, E. C. Palmer & Co., New Orleans.
A. M. Curryer, Pratt Paper Co., Des Moines, Ia.
B. N. Coffman, Pacific States Paper Trade Assn., San Francisco, Sovereign.
F. M. Couch, Blake, Moffitt & Towne, Los Angeles.
Robert G. Clayton, Sheridan-Clayton Paper Co., St. Joseph, Mo.
James A. Carpenter, Kansas City Paper House, Kansas City, Mo.
T. P. Chapman, T. P. Chapman Paper Co., St. Louis.
E. W. Church, Cincinnati Cordage & Paper Co., Cincinnati, O.

D

Charles W. Dau, Carpenter Paper Co., Des Moines.
F. E. Floyd, Crescent Paper Co., Indianapolis.
W. C. Dudley, Dudley Paper Co., Lansing, Mich.

E

J. W. Evans, Standard Paper Co., Cincinnati.
L. Evans, Cincinnati Cordage & Paper Co., Cincinnati.

F

F. Forchheimer, Chatfield & Woods Co., Pittsburgh.
Fred F. Fox, Crescent Paper Co., Indianapolis.

G

J. Ward Gates, Wichita Wholesale Paper Co.
W. N. Gillett, Chicago Paper Co., Chicago.
G. L. Green, Crown Paper & Bag Co., Jackson, Mich.

H

Arthur C. Hall, John Carter & Co., Boston.
W. L. Heath, H. G. Craig Co., New York.
S. J. Hodgins, Central Topeka Paper Co., Topeka, Kan.
H. N. Hearl, Quaker City Paper Co., Philadelphia.
A. J. House, Union Paper & Twine Co., Detroit.
Ed. F. Herrlinger, Union Selling Co., Cincinnati.

J

George S. Johnston, Western Newspaper Union, Omaha.
James P. Jensen, Brinn & Jensen Co., Omaha.
Dean Y. Johnston, Chatfield & Woods Co., Cincinnati.
F. T. Jamison, Interstate Cordage & Paper Co., Pittsburgh.
Sydney T. Jones, Hudson Valley Paper Co., Albany, N. Y.

L

Fred Lowe, Henry Lindenmeyr & Sons, New York City.
Ross Likens, St. Joseph Paper Co., St. Joseph, Mo.
Arnett W. Leslie, John Leslie Paper Co., Minneapolis.
Frank P. Leslie, John Leslie Paper Co., Minneapolis.
F. G. Leslie, F. G. Leslie Paper Co., St. Paul.
Perry W. Lesh, C. P. Lesh Paper Co., Indianapolis.
V. H. Larsen, Crescent Paper Co., Indianapolis.
F. W. Lotz, F. W. Lotz Paper Co., Dayton, O.

M

W. F. McQuillen, A. Storrs & Bement Co., Boston.
Joseph H. McCormick, American Paper Mills Corp., New York City.
W. J. McLellan, Carter, Rice & Co., Boston.
James McCracken, Riegel & Co., Philadelphia.
J. L. Murray, Mutual Paper Co., Seattle, Wash.
C. E. Mack, Mack-Elliott Paper Co., St. Louis.
A. M. Miller, Central Ohio Paper Co., Columbus.
R. W. Miller, Central Ohio Paper Co., Columbus.
W. C. McLaughlin, Union Paper & Twine Co., Detroit.
H. A. Mathewson, Paper Supply Co., Minneapolis.
Louis J. Marshall, Marshall Paper Co., Appleton, Wis.
H. J. Merickel, Toledo Merchandise Co., Toledo.

N

A. T. Nesbitt, Cincinnati Cordage & Paper Co., Dayton, O.
H. W. Newcomer, Cleveland Paper Manufacturing Co., Cleveland.

O

W. F. Obear, Cree-Obear Paper Co., St. Louis.
William A. O'Hara, Diem & Wing Paper Co., Cincinnati.

P

F. W. Power, Carter Rice & Co., Inc., Boston, Mass.
E. A. Petrequin, Petrequin Paper Co., Cleveland.

R

B. E. Reeves, Alling & Cory Co., Rochester, N. Y.
R. Roesch, Union Paper & Twine Co., Cleveland.
I. H. Reid, Diem & Wing Paper Co., Cincinnati.
J. V. Rowland, Rowland Co., Louisville, Ky.
W. Rindskopf, Rosenthal Paper Co., St. Louis.

S

W. D. St. Clair, Alling & Cory Co., Pittsburgh.
N. A. Schoenbucher, National Paper Trade Assn., New York.
W. B. Stevenson, A. Storrs & Bement Co., Boston.
Thomas H. Scallan, Chatfield & Woods Co., Cincinnati.
Fred Schlosser, M. & F. Schlosser, New York.
S. L. Schwartz, S. L. Schwartz & Co., Chicago.
George H. Strott, New York Paper Co., Baltimore.
F. W. Starling, Seaman-Patrick Paper Co., Detroit.
Thomas F. Smith, Louisville Paper Co., Louisville, Ky.
E. N. Smith, Tuttle Press, Appleton, Wis.
F. G. Smith, F. E. Smith Paper Co., Milwaukee.
A. G. Stewart, A. G. Stewart Paper Co., Chicago.
A. H. Seyler, Alling & Cory Co., Pittsburgh.
Arthur H. Smith, Alling & Cory Co., Pittsburgh.
Walter Seinsheimer, Seinsheimer Paper Co., Cincinnati.
H. W. Schrick, T. P. Chapman Paper Co., St. Louis.
John Single, John Single Paper Co., Syracuse.

T

J. W. Towne, Blake, Moffitt & Towne, San Francisco.
G. D. Tayloe, Tayloe Paper Co., Memphis.
W. W. Thompson, Chope-Stevens Paper Co., Detroit.

W

W. S. Wilcox, Wilcox-Walter-Furlong Paper Co., Philadelphia.
F. W. Wilson, Blake, Moffitt & Towne, San Francisco.
K. S. Warner, John F. Searle Co., New York.
E. L. Walters, Western Paper Co., Omaha.
B. W. Wilson, B. W. Wilson Paper Co., Richmond.
Sidney L. Wellhouse, National Paper Co., Atlanta.
C. J. Wittrock, Paragon Paper Co., Cincinnati.
B. C. Whitney, Whitney Paper Co., Wichita, Kas.

Fight Water Power Development Bill

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., October 15, 1923.—Paid propaganda is being spread about the state in an effort to defeat the Ferris amendment on which the people will vote on election day, it is emphatically claimed here by John N. Carlisle and others interested in the development of wasted resources of the Adirondacks. The Amendment is advanced as an enabling act that will make possible the utilization of three per cent of the state lands for water power development.

It is claimed that the wealthy sporting element that maintains camps and private preserves on streams and lakes in the Adirondacks is willing to expend a great amount of money in propaganda to influence the voters to vote against the Ferris amendment.

Probably the best posted man in this section on the power situation of the Adirondacks is E. S. Cullings, secretary of the Board of the Black River Regulating District. He was asked Friday concerning the provisions of the bill. The statement by D. B. Judson of Saranac Lake on the subject, published locally Thursday, was called to his attention.

"This amendment is just as necessary for the proposed plan of state power development as it is to enable other interests to make developments under state lease," he said. "If Governor Smith should be successful in his proposition of having the state own and develop its own water power, it would require the passage of an amendment such as the Ferris Amendment before he could proceed.

"In the first place the state owns very little power rights in the Adirondacks. The state areas would not be increased by the amendment. The Bird amendment permits the use of three per cent of the state lands for reservoirs. The Ferris Amendment simply extends the use of that three per cent, and no more, for the development of water power.

"Without the passage of the Ferris Amendment the state would have no more right to use the land for development purposes than would private companies."

Opposed Hawley Building Plans

[FROM OUR REGULAR CORRESPONDENT.]

OREGON CITY, Oregon, October 16, 1923.—The plans of the Hawley Pulp and Paper Company to install a new two machine mill met with a snag at the last meeting of the Town Council when the Oregon City Woolen Mills protested against the passage of an ordinance giving the paper company the street end of Third street.

Two days later the Hawley people announced their intention to cancel their building program, the news reaching the public through the medium of a special edition of the local paper.

The company's Plant B was burned out a week ago and the Hawley Company promptly made the proposition to the city to erect a plant that would be a credit to the place if the city would vacate the street end of Third street. A large majority of the people of Oregon City are in favor of giving the company what it asks for and every other encouragement which will enable it to enlarge and rebuild its plant.

What will you discover when your mill needs new equipment?

THERE are a good many paper plants that are going along well, apparently making money. But when old equipment needs replacement, some will find that they've been operating at a loss. Costs have not been accurately figured.

Steam costs offer an opportunity for inaccuracies. Unless they are accurately recorded they run higher than accountants believe.

Here's where power plant cost accounting comes to the rescue. In paper mills, it records the cost of steam per pound of paper. The readings are easily obtainable from Republic instruments, which also point out steam wastes throughout the plant and show the engineer which boilers are operating wastefully.

You should have the two bulletins, "Power Plant Cost Accounting" and "The Measurement of Steam." Ask for both.

REPUBLIC FLOW METERS CO.
2232 Diversey Parkway, Chicago

Birmingham Boston Dallas Denver New York Philadelphia
Pittsburgh Detroit Kansas City Portland, Ore.
San Francisco Minneapolis St. Paul Seattle Cincinnati St. Louis
Dominion Flow Meters Co., Toronto, Canada
Electro Flow Meters Co., 109 Kingsway, London, W. C. 2

PIONEER ELECTRICALLY OPERATED
REPUBLIC
FLOW METERS

The Republic reading instruments, because of electrical operation, can be grouped on a central panel board, as shown above.

The Republic CO_2 Recorder—

A highly accurate, exceedingly long-lived instrument for the continuous recording of CO_2 on a 24-hour chart. Gives the firemen a record that is a guide to greater efficiency; enables them to raise CO_2 and efficiency—to save money.

In the Republic Model SFC CO_2 and steam flow records are recorded on one chart.

Ask for bulletins describing both types.

PHILADELPHIA FINE PAPER PRICES HOLD STEADFAST

Coarse Papers Continue to Lag and Drop in Price of No. 2 Sulphite Bond Proves Feature of Week—Typothetæ Condemns Indiscriminate Return of Unused Paper by Printers—Box Makers and Supply Men to Banquet on October 23—H. T. Henning Co. Makes Improvements at Chester Plant—William B. Snyder Left Estate Totaling Half a Million—Personal and Business Notes.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., October 16, 1923.—Although the larger trade interests of Philadelphia during the past week were outside the city rather than inside, there was quite enough concern inside city limits in the way of increasing orders and, to some extent decreasing prices, to hold close attention. In itself the recession of number two sulphite bond by from one-half to one cent per pound, so that its average selling price is now in the neighborhood of twelve cents, was not intrinsicly as important to the trade as the belief that it foreshadowed other changes to come. Many in the trade regard this cheaper grade of sulphite bond as basic and therefore are of opinion that in due time the price change in this grade will reflect on the number one brand and thereafter that other brands also will be affected.

Because of this somewhat critical condition of the present day market, attention was directed all last week to the Chicago conferences, not so much because any price fixing would be attempted there as because this get-together meeting of mill men and of distributors will of necessity throw much light on possibilities and thereby will be a guide for future business.

All along the line in fine papers, save for the single instance noted, prices steadily were maintained and the past week brought even a larger increase from the preceding week than that did from its predecessor. Locally the consumption of printing papers still continues to be rather restricted but the out-of-town business is growing most satisfactorily.

Coarse Paper Still Slow

Conditions in the coarse paper market are by no means as good as they are in the fine. News print used for wrapping purposes went off an eighth of a cent and screenings and both silk and butcher's fibers moved off a quarter of a cent. Most offerings of Kraft were quoted during the last week at an average of one-half cent below those of the preceding period but even at these prices jobbers were not disposed to buy very liberally. Other grades of coarse paper barely were steady in price and none of them were in lively demand.

Probably not since the year began has the market for paper stock been so thoroughly cleaned up as it was all during the past week. The contributing causes were a little better mill demand and an increase between the amount of stock brought in to the warehouses of the packers and the mill requirements.

Credit Question Continues Prominent

This afternoon there is being held a meeting of the committee of the Typothetæ of Philadelphia which is endeavoring to broaden out its Credit Bureau into a greater institution which shall function for all industries in the allied graphic arts and of which, of course, the paper trade is the most important. Chairman William Sharpless at a get-together social and business session between printers, paper men and others in the supply trade, recently held in this city, threw out the suggestion that since they are so closely tied together in a business way, they have a common meeting ground in a Credit Bureau which should function impartially for the benefit of all.

Warns Printers Against Returns

The official organ of the Typothetæ of Philadelphia in its issue just published, calls the attention of the printing and publishing trade to a matter in which the paper distributors are very deeply concerned and one on which they probably will be forced to act by the adoption of a trade custom unless an abuse voluntarily is corrected by the printers. The matter under consideration—indiscriminate return of unused paper has for some time been pending before the paper distributors and now probably will be concluded. The typographical organ Form 9-H says:

"Printers who make a practice of returning merchandise to supply houses are fostering an evil that is rapidly assuming large proportions. One paper house reports that there have been months when returns have amounted to as much as four per cent of the total sales.

"This unnecessary expense has not as yet been passed back to the printer but unless something is being done to eliminate it, at least in part, the supply houses will very shortly take steps for their own protection.

"You can readily realize that a return of merchandise means double hauling, extra packing and oftentimes loss through spoiling and these items are not figured in the original cost of the goods.

"Can we not use more care in this matter to avoid this unnecessary expense, which in almost every case is due to carelessness?"

Clarifies Auer & Twitchell Affairs

In order to clarify some confusion which has taken place in trade opinion since the recent removal from the manufacturing plant at Twentieth street and Erie avenue of Auer & Twitchell, Inc., the Consolidated Paper Tube Company, and the Allied Paper Products Company, President J. F. Auer of Auer & Twitchell and also of the Consolidated Tube Company says that while the three corporations were tenants in that building and while the personnel of two are almost identical, all three are entirely distinct. Because of the changed character of the uses placed on the building removal was determined on. Auer and Twitchell took offices at 134 South Third street, its officers being in addition to President Auer, V. G. Bradbury, Treasurer, and H. S. Fox, Secretary. The Consolidated Tube Company officers are identical with those of Auer and Twitchell as to President and Treasurer, but George Aiken is Securetary. It and the Allied Paper Products Company, whose active manager is Secretary H. W. K. Smith, removed to Riverton, N. J., occupying their quarters in what formerly was known as the McWhorter property.

Maerz Joins Pinco Papers

Joseph A. Maerz, for twenty years connected with Datz and Matthias, and later on with its successor, A. S. Batz & Son, South Marshall, below Market street, and lately representing it among the Philadelphia paper box manufacturing trade, has severed his connection with that firm in order to join the sales organization of Pinco Papers, Inc., 9th and Bailey streets, Camden, N. J. Pinco Papers, Inc., is a paper coating plant catering almost entirely to the paper box industry and is the successor to the old established firm of E. G. Locke.

Box Makers and Supply Men Join

For the first time paper box supply salesmen and houses will join in a combined social and business meeting, the first of the season of the Philadelphia Paper Box Manufacturers' Association at its banquet to be held on October 23 at the Hotel Lorraine, Broad street and Fairmount avenue. An almost one hundred per cent representation of the paper houses and other supply men catering to the paper box industry has been taken into the recently created associate division of the association and, while the supply men very largely were represented a year ago at a somewhat similar function of the association, they were present at that time as guests, while this time they will gather as allied members. The

KENWOOD
WOOL PRODUCTS

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KENWOOD TAN JACKETS

—are ready for maximum production as soon as shrunken on. The special construction and treatment given Kenwood Tan Jackets make them thicker and stronger, cause them to shrink tighter to the roll, make them more resistant to friction and abrasion and to the deteriorating action of water and chemicals, and give them exceptional couching qualities and a MUCH LONGER LIFE.

Kenwood Tan Jackets are woven in layers and may be worn down to the last layer without danger to wires.

F. C. HUYCK & SONS

KENWOOD MILLS, Albany, N. Y.
KENWOOD MILLS LTD., Arnprior, Ontario, Canada

KENWOOD MILLS, Albany, N. Y.

KENWOOD MILLS LTD., Arnprior, Ontario, Canada

committee in charge of the function consists of Walter H. Deisroth of the W. H. Deisroth Company, chairman; Edwin Lee of the Lee Paper Box Company, and William K. Jefferies of the Crescent Corrugated Paper Products Company.

Henning Company Expands

Improvements have been added to the Chester plant of the H. T. Henning Company, whose Philadelphia offices are located in the Land Title Building, for the speedier handling of paper stock and other products in which the firm deals. In the iron yard there has been added two large shears for cutting up material, a derrick with magnet attachment for handling of iron and steel rails and a breaking machine. The Hennings Company's paper stock business now is handled excluvely through the Philadelphia headquarters on a brokerage basis and the Chester plant confined exclusively to the scrap iron division.

W. B. Snyder Estate Over $500,000

A personal estate valued at approximately half a million dollars is disposed of by the will of the late William B. Snyder, Philadelphia representative of the American Writing Paper Company, admitted to probate during the week. Mr. Snyder died recently in the Chestnut Hill Hospital. The document bequeaths the entire estate to his mother, Margaret E. Snyder.

Personal and Business Notes

Leon Beck, head of the Charles Beck Paper Company, and Harvey Hearle of the Quaker City Paper Company, are the delegates respectively of the fine and coarse paper divisions of the Philadelphia Paper Trade Association to the Fall conference of the National Paper Trade Association in Chicago.

The Keystone Company, recently established on Cherry, below Fourth street, by Frederick H. Balch, has just been appointed exclusive Philadelphia representative for the Manhassett Cover Papers made by the American Writing Paper Company.

In addition to rooms 7 and 118 Drexel Building, the Melchior Paper Company, has just taken over room 5 which gives it a direct street entrance and greatly adds to its facilities for conducting its business. The Drexel Building is becoming a Mecca, for the Paper Trade and a convenience to the Paper Buyer.

The Paper House of Pennsylvania is stocking the Snowfall Magazine paper, a super of pure white stock suitable for many printing purposes.

A. J. Blankerd, well known to the Philadelphia paper trade of years past as Philadelphia manager of the then Wilkinson Brothers Company, branch, Sixth and Commerce streets, is now representing a new organization, The United States Paper Manufacturing Company, which has taken over products of the Marley, Rising Sun, Durham, Hadley and other mills in the Philadelphia district, making Kraft papers.

Horace Lindsay of Lindsay Brothers, Inc., 806 Sansom street, made an auto trip through Maryland and Southern Pennsylvania.

New French hand made papers have been added to the stock of the Japan Paper Company, whose Philadelphia offices are located in the Witherspoon Building under the management of W. C. Miller.

Increase in the stock of the Diamond Paper Company, 229 North Third street will be provided when the firm acquires its new quarters as a result of the condemnation of the property it now occupies by the City of Philadelphia for the purpose of constructing the Philadelphia-Camden bridge.

At a meeting of the Board of the Pennsylvania Salt Manufacturing Company, Dr. George Fales Baker was elected President and Leonard T. Beale of the John T. Lewis & Bros. Co., Paint Manufacturers, was elected a director to fill the vacancy caused by the death of Arthur E. Rice who was President of the company. The stockholders of the company at their annual meeting on October 24 will vote among other things on a proposed amendment to the by-laws whereby a first Vice-President will be elected with authority to act in the absence of the President.

Closing of a contract for a turbine unit of 4,550 horse-power with the St. Croix Paper Company was announced by William Cramp & Sons Ship and Engine Building Company of Camden, N. J., during the week.

Saranac Valley Power Development

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., October 15, 1923.—The Saranac Valley is shortly to be the scene of one of the greatest power developments on record in the Adirondacks.

A dam 100 feet high and a large power plant, one of the most modern type, are to be erected at the famous High Fall of the Saranac river, between Bedford and Saranac, for the International Paper Company, which has held the power rights for several years.

The contract has been awarded to the Parklap Engineering Corporation, one of the largest construction companies in the world. Work is already underway at the High Falls project. Engineers have been clearing the site and for weeks material has been hauled to the site. Bunk houses to house 300 workmen are now being constructed. With the coming of spring the work will get fully under way with at least 500 men employed on the project.

The building of the big dam and power house means boom times for the residents of Saranac-Redwood section as it has been announced by the company that with the exception of its corps of experts and technical men, all employees will be drawn as far as possible from the villages and hamlets of the Saranac valley. As the result of this, carpenters, masons and laborers of that section are assured of months of work at high wages.

The dam is to be erected in the rocket gorge through which the river plunges in a series of falls that carry it down several hundred feet. Engineers pronounce the dam to be something of a freak in that it will have a greater height than width, owing to the narrowness of the gorge. It will be a towering affair fully 100 feet high—by far the highest along the Saranac valley.

The power station is to be erected at a point several thousand feet below the dam. The water impounded by the dam will be carried to the power house through a huge steel flume.

No estimate has been made public, but it is expected by the engineers that the plant is capable of producing enough power to operate the mills of the International Paper Company at Cadyville and other points below the falls and also to furnish light and power for the entire lower Saranac valley.

Fort William Paper Co. Completes Mill

The Fort William Paper Company completed its fine new plant at Fort William, Ont., with the installation in March of this year of a second paper machine. The first machine had been started in December, 1922, and the groundwood mill had previously been started in June, 1921.

The power house is equipped with four B. & W. boilers, type E stoker, 500 h.p., five reciprocating engines and has a Heine concrete stack with forced draft.

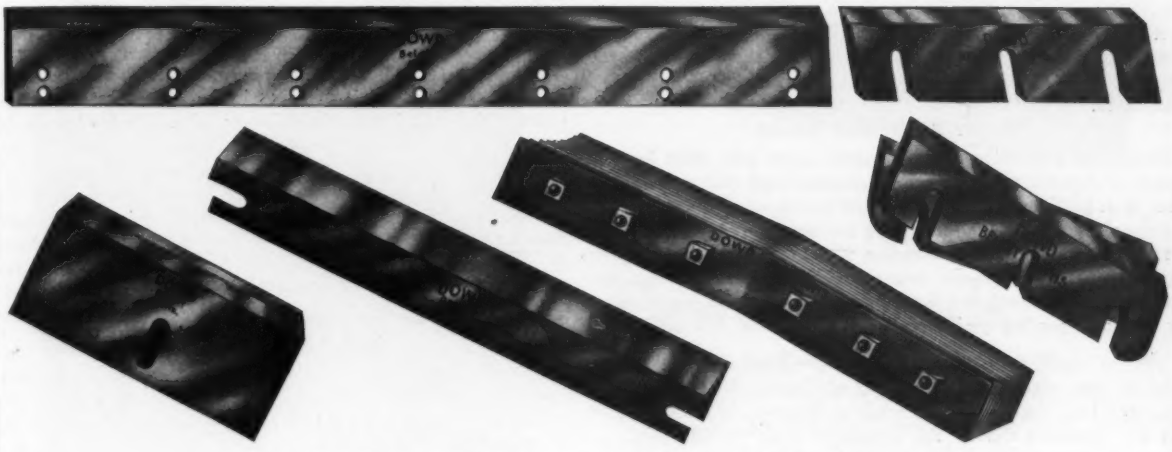
The groundwood mill was built by the Management Engineering and Development Company. It is equipped with six magazine Voith grinders and has a capacity of 288,000 lbs. per 24 hours.

The beater room contains three beaters and two mixers.

The machine room equipment includes two 194-inch Pusey & Jones Fourdriniers, widest trimmed sheet 182 inches. The paper machines have thirty-four 60-inch driers and are gear driven. Other machine room equipment includes Bird screens and Nash suction pump.

The production is news print, the capacity of the mill being 350,000 lbs. per 24 hours.

In paper mills where costs are watched closely Dowd products have always been the choice of careful buyers.



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CANADA NOT SURPRISED BY U. S. NEWS PRINT PRICES

Mills Have Made no Announcement but Are Expected to Favor Maintaining of Present Prices—Returns of Mills for August Show Another Record Production of News Print—Reconstruction Work Completed at Plant of Charles Walmsley & Co.—Shareholders Informed of Financial Status of Dryden Paper Co.—Limit Holders Confers with Provincial Cabinet.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., October 16, 1923.—It comes as no surprise to the industry here that contracts are now being made in the United States for news print at the present price of $75 per ton for the first six months of 1924. No official announcement as regards prices here has been put forward so far but the feeling is that most of the Canadian mills will favor the present prices being maintained.

Another News Print Record

Returns of production in the Canadian news print mills for the month of August, which are now available, show that a new high level of 114,721 tons of news print for the month was reached, or a daily average of 4,249 tons. The previous record was held by the month of May with a production of 112,135 tons. For the first eight months of the present year to the end of August, Canadian news print mills averaged 647 tons per day more than the average for the corresponding period of last year.

Walmsley & Co. Ready to Start

At the first annual general meeting of Charles Walmsley & Co. (Canada) Ltd., held during the week in Montreal, it was reported that the reconstruction of the company's plant at Longueuil, a suburb of Montreal, was now practically finished and the manufacture of a complete pulp and paper mill manufacturing equipon a large scale will commence at once. The following officers were re-elected: President, Sir William Price; Vice-president, Harry Kay; Secretary-Treasurer, Daniel H. Haigh, A. C. A. It will be recalled that a bond issue of $1,000,000 was made last year in connection with the organization of this company, which were guaranteed by Sir W. G. Armstrong, Witworth & Co.

Dryden Company's Position

In a letter to the shareholders of the Dryden Paper Company, Limited, for which friendly receivers has been appointed, the directors state that operations during the past three years, resulted in a loss of over $700,000 which had eliminated the working capital of the company and until there was a change in the kraft market, it would not be possible to do any financing. The immediate cause of the action in appointing a receiver was that the company found itself unable to meet the interest on the first lien notes and bonds and sinking fund payment of $50,000 that became due October 1, in such a way as to avoid foreclosure. Surplus assets over liabilities according to the company's books on August 31, 1923, are $5,066,780 or slightly over $50 a share. It was pointed out, however, that until the company can show earnings sufficient to meet interests on fixed charges, and a fair dividend on the stock, it will be impossible to do further financing to provide the necessary working capital. The letter added: "Your directors feel that with a moderate increase in price and improved demand for Kraft pulp, and when the new paper machine can turn out the quality of paper necessary, the business will show satisfactory results, and hope that receivership will prove a temporary expedient, and they intend to exert every means in their power to this end."

Stumpage Dues in Quebec

Possible reduction in the tariff of stumpage dues as now in force, and also to confer with the Government on general matters of interest to the lumber people, was the motive of bringing a representative delegation of limit holders to wait on the provincial Cabinet. Among those present were Sir William Price, Sir Henry Egan, D. McLaughlin, J. Booth, Gordon Edwards, J. Gillies, G. Gillies, J. S. Smith, J. R. Black, Robert Grant, General White and P. C. Owen. The interview was held privately and the only statement available from Hon. Honore Mercier, minister of lands and forests, at the close of the meeting of the Cabinet, was that the suggestions made by the lumbermen were under consideration.

Quebec's Paper-making School

The Quebec Government has decided to conduct the new paper-making school it has established in the Technical School Building at Three Rivers, Que. Paul E. Piche, of Montreal, has been appointed director of the school and the prospects for its usefulness and progress are very bright.

J. R. Booth on Holiday

J. R. Booth, Canada's veteran lumberman, has left Ottawa, on his annual vacation which will be spent at Madawaska. Although 96 years old, Mr. Booth continues in the best of health, and is in constant daily touch with his business affairs. He has been actively engaged in the lumber business for the past 75 years. While in the northern country "J. R." will renew many old acquaintances. Mr. Booth is the operator of extensive lumber and pulp and paper operations in the vicinity of the country's capital, also operates planning mills and wood factories at Burlington, Vt., which handles the American output of the business. A native of Quebec Province, Shefford County, he was educated at Waterloo. He removed to Ottawa in 1857 and quickly became a leader in his chosen business.

Empire Forestry Report

Fear of forest fires destroying the result of silviculture, or the treatment and planting of forest trees, is the greatest single deterrent to the general practice of reforestation in Canada. This view is emphasized by the British Empire Forestry Conference in its report, just issued. This report deals at length with the great need of better fire protection in Canada, the reduction of waste in logging and saw mill operations and the application of more efficient methods of silviculture. One of the most important recommendations is for the establishment of "reserve forests," or clearly defined districts, intended to remain as forests, where the arts of fire prevention, and silviculture would be specialized. In other forest areas, not so well suited for reforestation, no attempt would be made to replant trees. The conference expressed its opinion that the Empire's requirements of timber and other forest products should be supplied to the greatest possible extent for sources within the Empire and that it should become self-supporting in almost all minor forest products. Owing to Canada's vast forests, fire control, it is stated in the report, must continue to play an important part in the protection of the standing timber. While active fire prevention is urged, the conference claims that unfavorable climatic conditions may result in sudden emergency periods of great danger, and for this reason, forest officers should be clothed with powers adequate to conscript labor to fight emergency fires. "We are impressed," the report says, "not only with the value but with the necessity of using air-craft in protecting the forests of the inaccessible and uninhabited north country of Canada. Unfortunately costs of operation are so high as to restrict use below the point of efficiency where forest authorities are required to pay in full for services received. In view of the importance of this subject we feel that the attention of the Governments should be drawn to the national necessity of providing free or at moderate fares for the use of existing air services to the fullest extent in forest protection work. Where Government air facilities are not adequate to meet all the requirements, we are of the opinion that subsidies should be granted to commercial air companies sufficient to allow them to carry out forest protection work at rates which are within the economic means of forest authorities."

Handle More With Fewer Hands

The acute labor shortage existing today makes it imperative for every manufacturer employing one or more men for handling material to take immediate steps to cut down mounting labor costs.

Wide experience over a half century has resulted in the development of a complete line of Jeffrey standardized material handling machinery—that solves labor problems permanently in Pulp and Paper Mills—increases production—makes bigger profits.

Pulpwood Stackers; Conveyors; Elevators; Chains and Attachments; Coal and Ashes Handling Equipments; Skip Hoists; Industrial Locomotives, etc.

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Denver, Colo.....1721 Wazee Street
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Detroit, Mich.....455 Book Bldg.
Milwaukee, Wis.....M. & M. Bldg.
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JEFFREY

MATERIAL HANDLING MACHINERY

PAPER TRADE IN TORONTO FINDS BUSINESS SPOTTY

Volume of Turn-over, However, Is Better Than It Was—W. H. Lytle and Laurence E. Grigg Form Partnership and Will Specialize in Business Stationery—Gummed Papers, Ltd., to Extend Plant and Add Equipment—Shevlin-Clarke Co. Embarks on Big Logging Operations—Ministers of Lands and Mines Making Tour of Northern Section of Ontario—Jottings of the Industry.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ontario, October 15, 1923.—"Off again, on again, gone again," aptly describes the paper trade situation at the present time. In other words, the business is decidedly spotty. Orders are for the most part small and deliveries are required in record time. Stocks with most jobbers are below normal and the mills are employed on the day to day business. Still the aggregate is increasing and the volume of turn-over is better than it was. Prices rule firm on all lines and mills are fairly busy. News print is exceptionally strong and production is at the highest peak. Toilet and tissue plants are well employed but have to meet some competition from Scandinavia and German mills in the wrapping tissue line and light weight papers.

Ground wood pulp is still in good demand and the prevailing figure is from forty-two to forty-five dollars at the mill. Sulphite pulp is rather quiet at present and prices are, if anything, a little easier. Sulphate pulp has only a fair call.

There is much interest manifested this week in the annual gathering of the Canadian Paper Trade Association which will be held in Montreal. An important conference of the Mills Relations Committee with the manufacturers is one of the events of the assembly of the trade which will be representative from Coast to Coast.

New Business Firm Formed

W. H. Lytle, who for many years was with Buntin, Reid Company, wholesale paper dealers, Toronto, in an executive capacity, has formed a partnership with Laurence E. Grigg, lately sales manager of the United Typewriter Company. The new firm, which will be known as Grigg and Lytle, has secured premises at 103 Simcoe street and will specialize in business stationery.

Pulpwood Will Be About Normal

The Hammermill Paper Company, of Erie, Pa., whose logging headquarters in Ontario are at 412 Whalen Building, Port Arthur, M. Cochran being the manager, state that there are many rumors regarding the increase in prices for pulpwood. "It appears to us," adds Mr. Cochran, "that the demand will be about the same as last season and although some mills will not require as much wood as last season owing to the fact that they have considerable stocks on hand, at the same time the new plants in the district will bring the total requirements up to approximately what it was. The proposed embargo has not resulted in American buyers coming and securing or shipping larger quantities than is customary. The American mills were fortunate in obtaining delivery of a large percentage of their purchases, and while they will not be big buyers in the district around Port Arthur during the coming season, it is not anticipated that there will be any increase in their demands. The labor situation at the present time appears to be fair. Most of the wood is being cut by small shacker gangs and as yet there has been very little demand for men to go into the bush and cut by the cord."

Will Conduct Big Logging Operations

The Shevlin-Clarke Company, of Fort Frances, Ont., who recently acquired nine square miles of timber limits between Clearwater and Trout Lakes, in the Rainy River district, state that the holdings acquired are practically all burned timber which was visited by fire last summer and it is necessary to cut this timber this year. The company will put in camps and start logging at once. These including the regular logging, will mean about eleven camps for Shevlin-Clarke this winter. The firm will employ about 1,300 men and 500 head of horses in the woods. The Shevlin-Clarke Company are just getting started with the winter's activities and on the first of the month had 200 men in the bush, the wages they are paying being $35 a month and board. By the middle of November the company expect to have logging operations going full blast.

Brampton Firm Will Extend

Recently the ratepayers of Brampton, Ont. guaranteed the bonds of Gummed Papers, Ltd., of that town to the extent of $20,000 for a term of years. The firm will extend its premises, add considerable new equipment and augment the staff to take care of increased business.

Making Exploration of the North

Hon. James Lyons, Minister of Lands and Forests, and Hon. Charles McCrea, Minister of Mines for the province of Ontario, are making a two weeks' tour of the northern part of the province studying its needs and also its wooded and mining assets. The Ministers will visit all the towns and villages along the Temiskaming and Northern Ontario railway and consult with the settlers and others.

Embargo Would Hold Back Colonization

There will be about the usual cut of pulpwood in Northern Ontario this season. In some localities the harvest will be larger than a year ago and in other territories not so heavy as most of the mills are well stocked. Some contractors say that they did not make a dollar in taking out wood last season as the dry spring resulted in many logs being hung up in the streams and there is still considerable wood to come down. F. Charpentier, of Hearst, Ont., who is a large dealer, is strongly opposed to the proposed embargo on freehold wood. He says that, should it go into effect, it would hold back colonization in the north country for many years.

Notes and Jottings of the Industry

W. T. Bayly, who for the past two years has been attached to the mill staff of the Interlake Tissue Mills Co., at Merritton, has joined the selling staff in Toronto and entered upon his new duties.

R. E. Rudd, manager of sales for the Eaton-Dikeman Company, was a caller on the Toronto trade last week.

Fire broke out recently in the stock room of the Lennox Paper Mills, at Camden East, Ont., and did much damage to this department, the office and a boarding house. The mill escaped destruction owing to the good work of the fire fighters. The output of the plant will not be interfered with.

George Davidson, sales manager of the Howard Smith Paper Mills, Toronto, spent a few days last week in Montreal on business.

E. C. Young, for the past six years business manager of the Chronicle Publishing Company of Halifax, N. S., has been appointed treasurer of the Globe Printing Company, Toronto.

Install Mathieson System

The Mathieson system of the Mathieson Alkali Works for preparing bleach liquor for liquid chlorine has been installed by the following paper mills:—Riordan Company, Ltd., Hawkesbury, Ont.; Provincial Paper Mills, Port Arthur, Ont.; Port Huron Sulphite and Paper Company, Port Huron, Mich.; Crystal Tissue Company, Middletown, O.; Hammersley Manufacturing Company, Garfield, N. J.; S. George Paper Company, Wellsburg, W. Va.; Sweet Bros. Manufacturing Company, Inc., Phoenix, N. Y.; Dill & Collins Company, Philadelphia, Pa.; District of Columbia Paper and Manufacturing Company, Washington, D. C.; Consolidated Water Power and Paper Company, Appleton, Wis.; Mead Fibre Company, Kingsport, Tenn.; Kalamazoo Vegetable Parchment Paper Company, Kalamazoo, Mich.; Champion Fibre Company, Canton, N. C.; Nekoosa-Edwards Paper Company, Port Edwards, Wis.; Paterson Parchment Paper Company, Paterson, N. J.

The Bastrop Pulp & Paper Co.

Mills at Bastrop, Louisiana

Manufacturers of
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New York Trade Jottings

Frank E. Dunaway has resigned as director and sales manager of the Becker Wood Pulp Company of New York City.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, took an automobile trip through the Catskills last week end.

* * *

Lewis Bloch, of the Crown-Willamette Paper Company in San Francisco, was in town during the week for his usual semi-annual business visit.

* * *

The News Print Service Bureau will hold a luncheon and meeting at the Hotel Commodore on Friday following a Thursday session in the Canadian Club.

* * *

J. A. Bothwell, general manager of the Brompton Paper Company, East Angus, Quebec, attended the World Series and called on several of his friends in the local trade last week.

* * *

Among tenants who have leased quarters in the Tribune Building at 154 Nassau street are the Adam Paper Corporation, Kissler & Co., paper stock, and the Acme Paper Stock Corporation.

* * *

Mr. Brougham, superintendent of the United Paper Board Company at Wabash, Ind., was East on his vacation the first two weeks of October, visiting New York City, Albany and other centers.

* * *

Eric Bowater, director of the Anglo-Newfoundland Development Company, Corner Brook, Newfoundland, left for a several month's business trip in England and on the Continent last Tuesday. He will be back at his New York offices in the Canadian Pacific Building by the first of next year.

* * *

George H. Chahoon, president of the Laurentide Paper Company, Grand Mere, Quebec, was another visitor in New York. He spent much of his time watching the Yankees and the Giants settle the world's baseball championship. He found time to visit several of his business friends between games.

* * *

Ira S. Reynolds has joined the organization of Mead, Patton & Co., Inc., of 342 Madison avenue, as sales manager of the Deerfield Valley Paper Company, makers of Kraft paper. This mill has been in operation since the first of the year with one machine and is bringing a second machine into production within thirty days. Mr. Reynolds was formerly sales manager of the Claremont Paper Company.

* * *

The officers of the Great Notch Paper Company, 101-105 Varick street, are liquidating their company and expect it will be completed in a short time. The vice-president, John J. Leary, has made arrangements to transfer accounts to Thomas Barrett & Son, 500 Broome street, who will carry the same lines in addition to their attractive grades. The house of Barrett is so well known that little need be said on this score, hence, the former customers of the Great Notch Paper Company can be assured of good service in trading through the new connection.

Announces New Price Schedule

The Mathieson Alkali Works, Inc., announces that, on account of continued weaknesses in the market for bleaching powder, they have found it necessary to advise their contract customers that the price during the fourth quarter of this year will be $1.25 per 100 pounds for standard drums in carloads for shipments in October, and $1.50 per 100 pounds for standard drums in carloads for shipments in November and December, both f. o. b. Niagara Falls, N. Y.

These prices will be made effective as of October 1, and credits will be issued on shipments made between that time and this announcement.

The company also announces its prices for next year on both bleaching powder and liquid chlorine, stating that it will accept twelve months' contracts, effective January 1, for liquid chlorine in carload lots in either ton containers or single unit tank cars at 3½c per pound, f. o. b. Niagara Falls, N. Y., where the quantity is in excess of fifty tons per month; where the quantity is less than this, the price applying will be 3¾c per pound, f. o. b. Niagara Falls, N. Y. Contracts for liquid chlorine in cylinders will be accepted at 5½c per pound for carload quantities, and no less than 6c per pound for less than carloads.

Contracts for bleaching powder in carload lots in standard drums will be accepted at $1.50 per 100 pounds, f. o. b. Niagara Falls, N. Y.

Rumored Sale of Diana Interests

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., October 15, 1923.—John Weeks, vice president of the Diana Paper Company with mills at Harrisville, has sold his interests in the company to the St. Regis Paper Company group, it was reported Friday among local paper mill men. However, inquiry of Mr. Weeks over the 'phone, brought forth categoric denial and dismissal of the interview.

The report had it that while Floyd L. Carlisle, president of the St. Regis Paper Company, was in the city for three days during the week, the deal was consummated.

At first it was rumored that the St. Regis Paper Company had purchased the Diana Paper Company. Mark S. Wilder, president of the Diana Paper Company, made it very emphatic that he was in possession of absolutely no knowledge of such a matter and that he would be pleased to receive official advices upon developments. Following his denial of such a deal the basis of the report was said to be the selling of his interests by Mr. Weeks. Mr. Carlisle has been uncommunicative on the subject.

The Diana Paper Company manufactures light weight catalogue and specialties and is said to hold a large contract for supplying the paper for the Sears and Roebuck people. The capacity is 75,000 pounds in 24 hours, with two 110-inch Fourdriniers and a 102-inch wide trimmed sheet. The pulp mill has four grinders with water wheel connections and six electrically driven grinders. The groundwood capacity is 60,000 pounds a day.

Northern Paper Mill Improvements

Decided improvements have recently been made at the plant of the Northern Paper Mills, Green Bay, Wis., which are now culminating in the building of a water sedimentation basin of 16,000,000 gallons per day capacity with a four hour retention period. Alum will be used by the company as a coagulent. There has also been built an entire new decker system for bleached and unbleached sulphite and also groundwood.

One 295 H. P. Sterline boiler and a Type E stoker manufactured by the Combustion Engineering Company have been installed in the power plant. One 2,000 K. W. Turbo generator set has been installed. This is of the Extraction type manufactured by the General Electric Company.

In the pulp mill has been installed two Baker-Voith magazine grinders with the capacity of 35 tons per 24 hours. Two Jones 1,800 pound beaters have also been added to the paper mill equipment.

The production of the mill consists of hemlock and spruce sulphite, bleached and unbleached; groundwood, toilet tissues, napkins, towels, sulphite wrappings, hanging and specialties.

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Its distinguishing characteristics are fastness to light, acid, alkali and chlorine.

In whites or tints Ponsol Blue RP Triple Powder can be called permanent in direct sunlight, as it stands up almost indefinitely.

Its resistance to chlorine renders it valuable in mills where poorly worked bleached stock gives trouble with less fast colors.

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STANDARD DU PONT DYESTUFFS UNIFORM

Obituary

Herbert A. Wilder

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, October 15, 1923.—Herbert A. Wilder of Newton, Mass., veteran paper manufacturer and director of the International Paper Company since 1903, died Friday at the Phillips House this city at the age of 86 years. He was identified with the paper industry in this city longer than any other person, he having grown up with that business since he was a boy.

Mr. Wilder was born in Attleboro, Mass., on June 22, 1837. He was the son of Charles B. and Mary Ann (Guild) Wilder. From 1854 until 1871 Mr. Wilder was engaged in the paper business with his brother, the late Charles T. Wilder of Wellesley Hills, the partnership operating under the name of Wilder & Co.

Following the Boston fire of 1872 the partnership engaged in the manufacture of wood pulp and news print, operating mills in Lyndon and Barnet, Vt., and Ashland, N. H. The firm in 1883 acquired water power on the Connecticut river and constructed pulp and paper mills at Alcott Falls which place has been renamed Wilder, Vt. These Mills were eventually sold to the International Paper Company of which the deceased was a director.

While a young man living in Chelsea, Mr. Wilder in 1871 married Miss Sarah B. Page of Chelsea who died in 1891. He is survived by three daughters, Misses Margaret G., Constance F., and Mary C., all of Newton, Mass., and a sister, Miss Esther F. Wilder.

Dryden Paper Co. Expands

The Dryden Paper Company, Ltd., of Dryden, Ontario, has completed this year an extension to its plant which will materially facilitate mill operations.

Hazelton & Walin, of Winnipeg, were the contractors, and Hardy S. Ferguson, of New York City, the consulting engineer.

Waterpower of 2,600 horsepower has been developed. The dam is of concrete with wooden stop logs. There are two power houses—the Dryden power house with a 42 foot head and the Wainwright with a 29 foot head. The hydraulic and electrical machinery was installed by the Dominion Engineering Works for hydraulic and the Canadian Westinghouse Company for the electrical.

There are fifteen boilers in the power plant and the rated power is 2,350 boiler horse power and the company utilizes 22,000 tons a year of this. Wood waste is used in the smelters of the recovery system. One Goldie McCullock 150 H. P. turbine is located in the recovery room and the paper machines are driven by one 180 H. P. Robert Armstrong turbine, one 145 H. P. Leonard and one turbine manufactured by the Ames Iron Works.

The pulp mill, which has a capacity of 12 tons per day is equipped with two Waterous International grinders. Four 8 by 45 inch welded steel digesters in the pulp mill is reinforced by a Canadian Barking drum and a Waterous chipper.

The liquor making and chemical recovery plants include four systems with disc evaporators and the customary smelters.

Three 1,600 pound Waterous beaters and five 1,800 pound Jones beaters augmented by one Waterous iron tub bleach beater.

There is one Foudrinier of 100 inch trim and one Yankee of 120 inch trim. There are 26 driers, four feet by 110 inch face and one twelve feet by 132 inch face. The machines are operated by steam engine drive. There are flat and Spangenberg screens and Waterous quillers for first screening. There is one cylinder machine trimming 140 inches.

Finishing room equipment includes two Dillon cutters with Moore and White layboys, 120 and 100 inch trim; one 100 inch Langston rewinder, one 60 inch Cameron rewinder, one Hymac 48 by 42 inch press, one 76 inch Cranston guillotine and two Beloit winders.

The storage warehouse is of brick and steel construction. The mill produces 70 tons daily of Kraft and 12 tons daily of groundwood. The grade of paper made is M. F. and M. G. Kraft papers, butchers, envelope and bag manillas and sheathing papers.

Mill Village to Have Bank

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., October 15, 1923.—Deferiet, the little village owned by the St. Regis Paper Company and occupied by its large paper mill plant, is to have a bank all its own. It is reported and not denied that the St. Regis Paper Company and some of the officials of the Northern New York Trust Company are promoting the proposition.

The construction of a very modernly planned bank building between the company store and the meat market in the village was father of the rumor of the idea. A building 26 by 30 feet in dimensions and two stories high has been under construction for several days and is progressing rapidly. A heavy concrete foundation was built and what appears to be a burglar proof banking vault is being installed. Both floors are of concrete. The front is of typical bank building construction.

No information as to incorporators or stockholders could be obtained. It is expected that official authorization of the institution by the superintendent of banks will disclose the capitalization and the official personnel of the organization.

It is seen that the little bank will not only be a very important asset to Deferiet but will serve a much felt need among the small villages and countryside in that part of the county. At present the nearest banking facilities are at Carthage and Watertown. This bank will be appreciated by people living at Great Bend, Felts Mills, Black River and Herrings and will probably receive strong patronage.

Receiver Willson Writes

HOLYOKE, Mass., October 11, 1923.

Editor PAPER TRADE JOURNAL:

During the past ten days, because of the application for a receivership for the American Writing Paper Company, and the subsequent appointment of a receiver, much doubt has been created among the merchants, printers, and consumers as to whether or not the compuany is to continue operation.

To settle all doubt I wish to announce that there has been no cessation of operation; the company is prepared to execute all and any orders entrusted to us, and there is no probability that the receivership—or the proposed financial reorganization will in any way impair its operation; on the contrary, it is expected that the recent and proposed changes will enable the company to function more and efficiently; to produce better quality and give better service than in the past.

The receivership is the result of harmonious action on the part of representatives of the stockholders, bondholders and creditors, and for the benefit of all interested parties.

Yours truly,
SIDNEY L. WILLSON, Receiver,
AMERICAN WRITING PAPER COMPANY.

Assigned to Settle Trouble at Mills

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 17, 1923.—The Division of Conciliation, Department of Labor, announced today that Charles G. Wood, a conciliator, has been assigned to the strike or lock-out at the mills of the Dexter Paper Company, Windsor Locks, Conn. It is understood that a number of employees have been kept out of work because of their joining the union.

Dello Bond

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FINE ART—No. 171,727. Chicago Paper Company, Chicago. For writing paper, printing paper, ledger paper, book paper, bond paper.

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"M"—No. 182,713. D. D. Madden & Co., Inc., Portland, Ore. For paper used for printing or lithographing bank checks.

PARANOID—No. 182,941. Henry L. Tetamore, Glendale, N. Y. For wrapping paper.

BOSSFIBRE—No. 183,108. George E. Gagnier, Detroit, Mich. For fiber board and automobile panel material.

D & W MANILA—No. 183,056. The Diem & Wing Paper Company, Cincinnati, Ohio. For wrapping paper.

BUCKFIBRE—No. 183,107. George E. Gagnier, Detroit, Mich. For fiber board and automobile panel material.

Importation of Sulphite Tissue

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 10, 1923.—Assistant Secretary of the Treasury Moss, has had some interesting correspondence with the Collector of Customs at San Juan, Porto Rico, in connection with the importation of so-called "sulphite tissue wrapping paper."

Secretary Moss has just sent a communication to the Collector in regard to the classification of this paper. Judge Moss, in part, says:

"You quote from a letter from the Appraiser at the Port of New York in which he states that it is his practice to return similar paper as wrapping paper since Department ruling, T. D. 31885, but that as the paper is commercially known as machine glazed sulphite tissue paper he is of the opinion that it should be returned for duty under paragraph 1304 of the tariff act, but that such a return would constitute a change of practice unless it has been classified at your port or at other ports for a period of time as tissue paper.

"In view of the statement of the Appraiser at the Port of New York that the paper is known commercially as tissue paper, the Department is now of the opinion that it is properly dutiable as such under paragraph 1304, and you will be governed accordingly. However, as you state that this paper has not been previously imported through your port and the Department is in receipt of a letter from the Appraiser at New York that it has been his practice to return the paper as wrapping paper and outside ports have been consistently advised to this effect through the Customs Information Exchange, the Department is of the opinion that the classification of the merchandise under paragraph 1304 will be a change of practice and as it will result in the assessment of a higher rate of duty than has heretofore been assessed, you are directed not to assess duty on the paper under paragraph 1304 imported or withdrawn from customs custody prior to thirty days from date hereof." The paper is described as: "sulphite tissue wrapping paper, glazed on one side, and weighing under 10 lbs. per ream, 20 x 30, 480 sheets to the ream."

Controversy Follows Arbitration

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., October 16, 1923.—A lively controversy between Charles G. Wood, who appeared as counsel for the Stationary Firemen's Union at the arbitration hearing before Fred M. Knight of the State Board of Arbitration and Conciliation, and President S. L. Willson of the American Writing Paper Company, developed the past week.

Mr. Wood issued a statement, a part of which follows:

"The arbitration hearing which closed Wednesday evening established, among other things, that the stationary firemen, members of Local 4, were grossly maligned during the strike. They were abused, misrepresented and falsely accused of 'holding up' the paper industry involved in the controversy.

"The cause of this strike was the adoption of methods inimical to to the maintenance of industrial peace. In the last three years there has crept into the relation between the employers and firemen an insidious condition that has destroyed the confidence the employe had in the integrity of the employers. This was unfortunate because most of the employers are men of the highest type whose good faith has been established by years of fair dealing.

"If the citizens of Holyoke want to enjoy the security of industrial peace—the sort that obtained when Frank McElwain was chairman of the committee representing employers—they should take a larger interest in it; they should look for the causes and motives which arouse men to fight."

To this statement President Willson took vigorous exception and replied in part as follows:

"The article given prominence in some of the papers stating the opinion of F. G. Wood on the controversy between the paper manufacturers and the stationary firemen is one which in my opinion should not go unchallenged.

"In the first place he indulges in generalities, a habit peculiar to those who do not or cannot support their statements with specific facts, and who thereby try to mislead some of the public part of the time.

"I do not care to have a controversy with Mr. Wood or anyone else upon a closed subject, but I do protest against a Federal Labor counsellor, acting in a private capacity, permitting the use of his Federal title to create the impression that his statements are sanctioned by governmental authority and therefore to be given consideration to which they are not entitled."

Getting Ready to Start Dam Job

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., October 15, 1923.—More than 400 men are now employed by Fred C. Pierce, contractor on the lumbering job at the Stillwater where the Board of the Black River Regulating District is clearing the tract to be flooded by the enlarged reservoir. Eight camps have been established and the work of cutting the timber is progressing rapidly, according to E. S. Cullings, secretary of the Board. The regulating board also has 50 men at work cleaning up the ground behind the advancing lumbermen. Charles H. Steinhilber is in charge of the clearing job.

It is considered remarkable that such a force could be organized in so short a time. It is said that men are arriving daily in quest of work in the camps, and are being promptly placed in service.

"The Board expects to be able to advertise for bids on the erection of the dam within a month," said Mr. Cullings. "We want the prospective bidders to visit the site during October when there is no water in the pond to obstruct inspection of conditions. The pond awarded this fall it will be possible for construction work to start has been empty for some time. With the bids received and contract early next spring."

Sues Paper Company for $320,000

RICHMOND Va., October 15, 1923.—The $320,000 suit of La Compagnie de Pulpe de Chicotimi, a Canadian concern, filed against the Bedford Pulp and Paper Company, of this city, on June 14, 1922, has been set for a special session of the United States district court, to open December 12.

The plaintiff alleges trespass on the case in assumpsit to the amount of $320,000.

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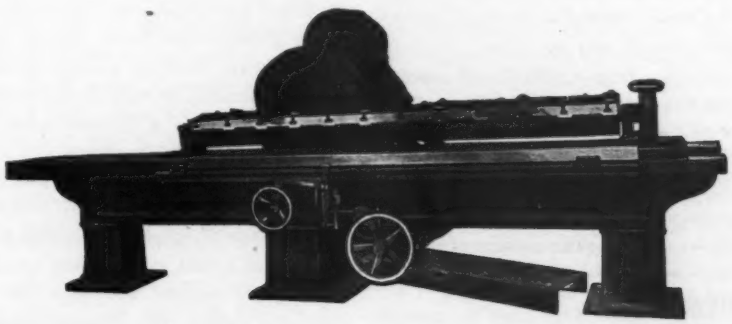

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Quality in a Knife Grinder—Pays big dividends

Editorial

Vol. LXXVII New York, October 18, 1923 No. 16
HENRY J. BERGER, Editor

THE MILL NUMBER

Marked and interesting improvements in the pulp and paper industry of both the United States and Canada have been made in the past year and this Mill Number of the PAPER TRADE JOURNAL has been undertaken to visualize the enterprise that has been displayed in the paper making sections all over the North American Continent.

Of chief interest in this issue, doubtless, will be the folder insert of the detail drawing of the largest paper machine in the world, just being built by the Dominion Engineering Works of Montreal for the new news print mill of the Backus-Brooks Company of Kenora, Ont. Measuring 234 inches in width and designed to run at the rate of 1,000 feet per minute, this monster machine will greatly surpass in many unique features any conception of what seemed possible in paper manufacturing only a comparatively short time ago.

The "Wasteless Mill" just completed by the Nekoosa-Edwards Paper Company at Port Edwards, the new mill of the St. Maurice Lumber Company, subsidiary of the International Paper Company, at Three Rivers, Que., said to be the most up-to-date pulp and paper mill in the world, the starting of the biggest paper machine in the United States by the Algonquin Paper Corporation at Ogdensburg, N. Y., the developments in the way of kraft paper manufacturing in the South from raw materials not until recently thought specially suited to that purpose, and the minor refinements developed recently by various mills in the production of pulp and paper, which are described and illustrated in this issue from a collection of material, which, it is believed, will make this issue of the PAPER TRADE JOURNAL one of the most interesting and valuable that has ever been printed.

The Mill Number certainly furnishes ample evidence that the members of the industry, for the most part at least, are alive to the fact that nowadays up-to-dateness is an absolute essential of success.

FUTURE FORESTS

The public mind is becoming increasingly aware of the need for strenuous measures if the United States is to have any forests in the next generation. Careless lumbering is now almost as universally condemned as the ruthless destruction of wild game. The American people needs a jolt to awaken it, but once thoroughly aware of a danger it has a long memory. The threatened Canadian embargo on pulpwood was just such a jolt.

When Mr. Average Man realized that there was danger of his not having his morning paper on his stoop every day, he got up on his hind legs and howled. It took the destruction of the buffalo and the passenger pigeon to put game laws in every State in the Union. It ought to be just as great a misdemeanor to destroy a tree unnecessarily as it is to shoot a deer out of season.

The late President Harding pledged himself to a definite program for forestry conservation, and, while President Coolidge has not definitely stated his feeling in the matter, it is highly probable that he will continue the policy of his predecessor. The groundwork was laid during the Roosevelt and following adiministrations. It is now time for the Government to go into conservation to the limit and there is every indication that it intends to do so.

Many organizations are working to keep the matter before Congress, and of these none is more zealous than the National Forestry Program Committee, of which Mr. R. S. Kellogg, secretary of the News Print Service Bureau, is an extremely active member.

At a meeting of the committee in New York on October 5 a number of practical proposals for a conservation program to be laid before the next Congress were considered. They aim not only to conserve present resources and provide for future ones, but also for the utilization of every single bit of each tree that is cut. Anyone who has walked through a newly cut over lot and seen the huge piles of slashings will realize the wisdom of the last.

Among the propositions discussed were increased appropriations for studies in forest research and forest utilization, a permanent appropriation for the purchase of additional national forest lands and increased appropriations for forest fire prevention.

The taxpayer who fails to look far ahead may shudder at the constant recurrence to the word "appropriation." This means money out of his pocket, he will say, but after all how can he spend his money better? China is a living example of what ruthless cutting away of forests can do for a country. Drouths, famines, floods and starved farm lands are all directly traceable to this.

During the last twelve years the Government has spent $12,000,000 on the purchase of new forest lands. The National Forestry Program Committee believes that there should be a permanent appropriation of $2,000,000 a year for this purpose and proposes to put the matter before Congress in the form of a bill.

The United States Forest Service says that revenues from sale of timber and livestock grazing permits and use of forests for summer recreation brought in $5,335,818 for the fiscal year ending June 30. If nearly a five and a half million dollar return in a year on a $12,000,000 investment is a good business proposition for the taxpayers, how much greater would be the returns if additional lands were taken up by the Government.

The amount of figuring required to find out would not be beyond the grasp of a child in a grammar school and certainly any member of the paper industry who takes time to think it over will unqualifiedly endorse the National Forestry Program Committee's proposition.

FOREIGN PAPER SALES STILL SMALL

The figures for the exports of paper for August, which have just been issued by the Department of Commerce at Washington and which are the latest statistics available, showed some increase both as compared with the preceding months and with August of last year, although the figures continue too small to give much promise of an early improvement. The figures for August were $2,172,840 as compared with $2,079,267 for July and $2,076,985 for August of last year. The exports of paper for the eight months ending with August amounted to $17,431,135 as compared with $15,892,216 for the same period last year.

The exports of news print showed no special expansion, the

figures for August being $109,275 as compared with $102,561 for July and $181,077 for August of last year. The exports of news print for the eight months ending with August were valued at $1,108,781 as compared with $1,705,085 for the same period last year.

The exports of wrapping paper, however, continued to show a fairly good gain. The figures for August were $177,762 as compared with $165,187 for July and $146,747 for August of last year. The exports of all varieties of wrapping paper for the eight months ending with August were $1,474,527 as compared with $1,449,356 for the same period each year.

The exports of paper board and straw board also showed a fairly good increase, the figures for the month being $284,349 as compared with $227,060 for July and $244,096 for August a year ago. The exports of paper board and straw board for the eight months ending with August amounted to $1,835,049 as compared with $1,396,372 for the same period last year.

The exports of writing paper, except papeteries, for August were valued at $89,530 as compared with $77,790 for July and $111,913 for August of last year. The exports of writing paper, except papeteries, for the eight months ending with August were valued at $1,428,633 as compared with $1,401,168 for the same period last year.

The exports of toilet paper for August were valued at $63,316 as compared with $50,742 for July and $54,341 for August of last year. The exports of toilet paper for the eight months ending with August were valued at $419,440 as compared with $367,226 for the same period last year.

The imports of paper for August showed a goodly increase, the figures for the month being $10,140,431 as compared with $9,145,907 for July and only $6,863,045 for August of last year. The imports of paper for the eight months ending with August were valued at $76,409,350 as compared with $53,551,943 for the same period year.

The increase in the imports of paper naturally showed up prominently in the imports of news print, the figures for the month being $8,545,206 as compared with $7,734,707 for July and only $5,866,045 for August of last year. The imports of news print for the eight months ending with August were valued at $64,209,410 as compared with $45,415,983 for the same period last year.

The imports of rags for paper stock for August were valued at $533,172 as compared with $445,119 for July and $516,538 for August of last year. The imports of rags for paper stock for the eight months ending with August were valued at $4,666,028 as compared with $2,666,685 for the same period last year.

The imports of ground wood for August showed a considerable increase, the figures for the month being $761,108 as compared with $521,589 for July and $358,938 for August of last year. The imports of ground wood for the eight months ending with August were valued at $5,556,991 as compared with $2,805,868 for the same period last year.

The imports of sulphite pulp for August were valued at $4,416,485 as compared with $3,629,842 for July and $3,242,791 for August of last year. The imports of sulphite pulp for the eight months ending with August amounted to $32,520,983 as compared with $22,947,101 for the same period last year.

The imports of sulphate pulp for August were valued at $1,664,682 as compared with $1,440,214 for July and $1,339,774 for August of last year. The import of sulphate pulp for the eight months ending with August were valued at $10,664,558 as compared with $9,851,611 for the same period last year.

Paper Industries Exchange Opens in New York

The New York branch of the Paper Industries Exchange opened at noon last Tuesday before a crowd of two hundred representative men of the industry in its quarters in Room 801 of the Pershing Square Building on East 42nd street. Trading was very lively for the first day, the majority of the deals being in waste paper.

John R. Mauff, executive vice-president of the exchange, opened the new branch with a short speech. He said in part:

"The exchange system of trading is a method whereby both sellers and buyers congregate for trading purposes and where such trading is conducted by public outcry. The purpose of this viva voce operation of trading is to disclose fully to all those in attendance just what each and everyone is not only willing to do, but contracts to do. This method of trading in the open and under the full light of day, as against the old secretive idea, is the keystone to the success of this exchange system of trading wherever it has been tried out on either a large or small scale for any length of time.

"The trade practices can be inaugurated and carried out through an exchange properly organized, and market information and statistics can be cleared and compiled through the exchange. The statistical information of orders on hand, raw material stocks on hand, daily or weekly production, must be of great benefit to those in the trade, just as such accurate knowledge is of benefit to any other industry. Also the mere fact that members have group meetings of their industry in which they see their fellow competitor, discuss their problems with him and difficult matters of standards, terms, cost, etc., is of incalculable benefit to them.

"Recently a large manufacturer of paper stated that if the exchange eventually developed into a medium through which these statistical reports could be cleared and simplified that it would be a tremendous benefit to his company. There would be, of course, the further opportunity for an association already provided with a very able secretary to come into the exchange and bring along as much of the association machine as might be desirable to retain."

The New York Exchange has well over sixty members, but on the opening day anyone present was permitted to bid as a demonstration. The floor was open for one hour from 12 to 1 o'clock, and those present took full advantage of the opportunity to buy and sell. When the moment of closing came almost the entire board was covered with quotations.

Quotations from the Chicago exchange were also chalked up as fast as the deals were made, since trading was going on simultaneously in both cities. The Journal of Commerce of Chicago has loaned Mr. Mauff the use of its direct wire for sending the quotations direct.

Trading will continue every day except Saturday and Sunday, with A. J. Neumann as manager in charge.

New England Salesmen to Meet

The New England Division of the Salesmen's Association of the Paper Industry will meet at 12:30 o'clock Monday, October 22, at the Hotel Nonatuck, Holyoke, Mass.

Walter E. Perry, vice-president of the New England Division of the Salesmen's Association, invites all members of the association and others interested in the association's work to attend this luncheon.

Those desiring to attend should write to Walter E. Perry, vice-president of the New England Division, Chemical Paper Manufacturing Company, Holyoke, Mass.

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

A LIQUID SULPHUR DIOXIDE PROCESS FOR SULPHITE PULP*

By Ralph H. McKee and Donald E. Cable, Department of Chemical Engineering, Columbia University, New York, N. Y.

Hitherto the resinous woods such as the yellow pine of the South and the Douglas fir of the west have not been available for the manufacture of sulphite paper pulp, owing to the large amounts of resins present. A new process[1] which has been worked out in the Department of Chemical Engineering, Columbia University, permits the utilization of these cheap woods for making sulphite pulp and at the same time recovers in a form commercially saleable the rosin and turpentine originally present in the wood. The process in brief consists in chipping the moderately dried wood, dissolving out the turpentine and rosin from these chips by use of liquid sulphur dioxide as a solvent, and then cooking the chips with the ordinary "sulphite acid." The pulp obtained is a good quality sulphite pulp. Preliminary experiments have shown that the fiber of the yellow pine is fully as good a paper making fiber and, in the opinion of some, better than our standard fiber spruce.

Liquid sulphur dioxide apparently is due to be on the American market in tank car lots at a quite moderate price. Indeed, it has already been known to sell in tank car lots at $12 a ton. It will undoubtedly be available at the plant at distinctly less than one cent a pound. When one remembers that liquid SO_2 is one of the best solvents for resins and oils and compares the price of this with other solvents for resins and oils, it is apparent that this is a new solvent of great commercial promise. Carbon tetrachloride, chloroform and ethylene chloride cost between 9 and 35 cents a pound; even the poorer solvents, benzol, alcohol and gasoline each cost from 3 to 5 cents a pound and moreover are subject to exceedingly high fire risks and large losses in operation.

A disadvantage encountered in the use of liquid sulphur dioxide as a solvent over those mentioned above lies in the fact that its vapor pressure at ordinary temperatures lies above atmospheric pressure. Its vapor pressure varies from zero pressure at 10°C. to 76 lb. gauge pressure at 40°C. As a result of these elevated pressures it would be necessary in carrying out such extractions to use equipment designed to withstand pressures up to say 100 lb. per square inch.

Sulphite pulp digesters are ordinarily built of steel and lined with acid resisting brick. Furthermore they are capable of withstanding such a pressure. Consequently, it is proposed that the extraction operation as well as the subsequent cooking operation be conducted in the digester, though unlined steel vessels might be used for the extraction as liquid sulphur dioxide does not corrode iron or steel.

Experimental

A considerable amount of experimental work has been necessary in determining the many details of procedure necessary in a successful commercial application of this process. This work is still in progress and the results presented in this paper only go part way toward completing the task, but they are of sufficient importance to be now presented. Practically the entire work on the extraction of resinous matter from wood chips using this inorganic solvent during the past year has been done on chips said to have come from the scrub pine (*Pinus virginiana.*)

Control Tests

In order to follow the progress of extraction of resinous matter from wood chips by means of liquid SO_2 it was necessary to devise some simple yet accurate control test to indicate the amount of resinous matter remaining in the wood after partial or nearly exhaustive extraction with sulphur dioxide.

The details of the procedure arrived at are as follows:

A quantity of chips sufficient to nearly fill the extraction chamber to the level of top of siphoning tube of a soxhlet apparatus (50 mm. inside diameter) is weighed in a tared beaker, then placed in the extraction chamber and covered with a plug of cotton. Pure benzene (b. p. 80-82°C.) or benzene recovered from a previous extraction is poured into chamber to within one half an inch of the top of siphon tube. The lower flask of soxhlet apparatus is filled about a quarter full of benzene, and the whole apparatus is lowered so that the flask rests on a sand covered hot plate. Benzene extraction of the chips is made to proceed for *six* hours. The extracted chips are then removed to a large watch glass and are allowed to stand exposed to the air overnight to allow the benzene to evaporate. The extract in the extraction flask is slowly decanted into a clean, tared, interchangeable flask made for the same apparatus. In this way any suspended woody matter which has been carried down into the first flask can be removed from the solution without the unnecessary trouble of filtering. The apparatus with the second flask attached is heated on hot plate as before.

*Presented before the Cellulose Section—American Chemical Soc. at the Milwaukee meeting, September, 1923.

[1] U. S. Patent 1,360,658.

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In this way the benzene extract in the flask can be concentrated to a low volume before removing it from the hot plate and at the same time most of the solvent can be recovered for future use by accumulation within the extraction chamber. The last portion of solvent in extraction flask is removed after that flask has been removed from the rest of apparatus by blowing a stream of warm dried air into the flask while the latter is being rotated slowly. In this way a thin film of resinous matter is formed of fairly uniform thickness which can be quite completely freed of solvent and moisture by continuing the gentle blast of warm dried air assisted by warming the outside of flask from time to time by turning it while being held a short distance above the surface of the hot plate. The flask with the dried film of resinous matter is allowed to stand overnight in an inverted position and supported above table top by means of an iron ring. The next day the flask with adhering resinous matter is weighed. The difference in weights of course gives the amount of resinous matter removed by solvent.

The chips from the benzene extraction after standing overnight were replaced in extraction chamber of soxhlet apparatus and a corresponding extraction was made with grain alcohol (95 per cent). Final drying and weighing of the alcoholic extractives, however, was done in a tared 150 cc. beaker. Also the normal period of extraction using alcohol as the solvent was *seven* hours instead of the six-hour interval such as used for the benzene extraction.

The benzene extractives are called the *benzene residue* and the alcoholic extractives are called the *alcohol residue*.

The chips after extraction with grain alcohol are removed as before to a large watch glass on which they are allowed to stand overnight exposed to the air. These chips are then dired at 105°C. for six to eight hours. After allowing them to cool in a dessicator they are weighed.

All values given for *benzene* or *alcohol residues* are based on the oven dry weight of extracted chips.

It is our opinion supported by a recent reference in the literature[1] that the benzene residue contains all the rosin-like constituents of the original wood also other constituents which are responsible for the so-called "pitch troubles" encountered in the manufacture of pulp and paper from wood. It is also our belief that the alcohol residue contains lignin-like constituents as well as gums, most of which would be removed by the sulphite cooking liquor.

A series of preliminary extractions were made to determine approximately the optimum conditions under which control tests should be made as affected by the sequence of solvents used for extraction and to determine the effect of moisture originally present in the chips on the completeness of extraction when working with the two solvents considered, alcohol and benzene. The results of these preliminary extractions are shown in Table 1.

TABLE I—SUMMARY OF RESULTS ON EXTRACTION OF WOOD CHIPS (P)
(Stated in per cent, and based on oven dry weight of chips used)

	1st solvent	2nd solvent
Extraction before oven drying..	benzene 1.18	alcohol 0.98
	alcohol 2.81	benzene 0.11
Extraction after oven drying..	benzene 1.24	alcohol 1.30
	alcohol 2.86	benzene 0.07

It is apparent from these results that the best selective solvent action is obtained by extraction of either the fresh or the oven dried chips first with benzene, then alcohol. The effect of drying of chips in this case does not seem to be of much importance from the standpoint of completeness of extraction with the two solvents considered. By extraction of these chips first with liquid sulphur dioxide followed by standing overnight with free exposure to the air such chips would be relatively free of moisture so they would approximate most closely the condition of those chips which had been first oven dried.

[1] A. Cleve von Euler, Cellulosechemie. Vol. IV, No. 1 (Feb. 11, 1923).

Soxhlet Method of Extraction

In order to determine the relation between the number of additions of fresh solvent (liq. sulphur dioxide) to a batch of chips and the corresponding reduction obtained in the resin content of the chips so extracted a special iron apparatus was used which operated on the same principle as that of the ordinary soxhlet apparatus except that it worked under pressure (about 75 lb. gauge in these experiments). When working with this apparatus the average time between successive siphonages was 20 minutes. The temperature of the sulphur dioxide in contact with the chips was not accurately known, being somewhere between 25° and 40°C. Using this apparatus a series of three extractions was made. The data so obtained shows:

	(1) Benzene residue	(2) Alcohol residue
Raw chips	1.24	1.30
6 siphonages	0.45	1.23
9 siphonages	0.16	1.19
24 siphonages	0.04	0.87

The most significant results are those shown in column (1). It is believed that the constituents in column (2) as mentioned above are largely removed by the solvent action of the cooking liquor in the sulphite process of pulp manufacture. The belief is also advanced, but will need to be substantiated, that very appreciable reduction of the alcohol residue constituents as obtained above with 24 siphonages is undesirable from the standpoint of introducing objectionable impurities into the rosin which will be obtained as a by-product of this proposed process and that it leads to no particular advantage from a pulp making standpoint.

Pressure Cell Method of Extraction

In order to study experimentally the progress of removal of resinous matter from wood chips by extraction with liquid sulphur dioxide under conditions similar to those that would most probably be obtained when working on a commercial scale it was decided to use a simple iron pressure cell. A sketch of it is shown in Figure I. It was made by using a 3 in. pipe nipple (N) 10 in. long.

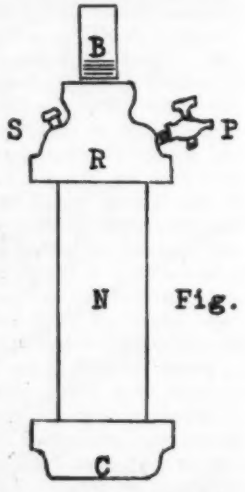


Fig. I

PRESSURE EXTRACTION

On one end of this nipple was placed a cap (C) and on the other end a reducer (R) from 3 in. to 1¼ in. Instead of using an ordinary 1¼ in. pipe plug to close the smaller end of reducer a specially made plug B was used on which a greater torque could be applied for removal of plug after completion of extraction than could safely be applied to the ordinary pipe plug of that size. Holes were drilled into the reducer and tapped to receive pet cock (P) and plug (S) (both of ¼ in. size). In making a permanent connection between reducer (R), nipple (N) and cap (C) a litharge-glycerine paste was applied to the threads. After standing for a day this gave gas tight joints suitable for working with liquid SO_2 under pressure. Before being used this cell was vigorously scrubbed inside with warm soap water and a large brush inserted through the 1¼ in. hole at top. After rinsing out thoroughly with hot water followed by drying with a towel and finally a stream of warm dry air this cell was ready for use.

In the following experiments a different lot of pine chips (Y)

was used as distinguished from the chips (P) which were used in the soxhlet type of apparatus. Analysis of chips (Y) indicated the following amounts of resinous matter present:

Benzene residue	1.36% (oven dry basis)
Alcohol residue	1.27% (oven dry basis)

A quantity of chips sufficient to reach the top of nipple (N) is weighed out in a beaker and transferred through the 1¼ in. hole to inside of cell. A soft plug of pure cotton is placed over the chips. Plug (B) lubricated with a thin film of graphite-oil paste is screwed tightly into top of reducer. With plug (S) out and pet cock (P) open a measured quantity of liquid SO_2 is poured through a glass funnel into the cell through hole (S). With this solvent added till it completely covers the chips the small plug (lubricated with a graphite-oil paste) is screwed into hole (S) and pet cock (P) turned off. The cell containing chips and solvent could then be maintained at any desired temperature (with corresponding pressure) by immersion in a pail containing water at that temperature. After the chips had thus been left in contact with the solvent the cell was cooled down to 10 to 15°C by immersion in cold running tap water. The cell was then removed from the pail of cold water and the internal pressure slowly reduced to that of the atmosphere by gradual opening of pet cock (P). By that time a sufficient quantity of the solvent had boiled off to cool the remaining solvent and the cell walls to 10°C. at which temperature the liquid SO_2 is in equilibrium with the atmospheric pressure. The plug was then removed from hole (S) and the resinous extract was poured into a tared beaker by inverting the cell. The amount of resinous matter which had been removed from the chips by this extraction was determined directly by weighing the residue left in beaker after evaporating off the SO_2, water and volatile oils.

If an additional extraction of the chips was wanted fresh liquid SO_2 was run into cell as before and above operations repeated. If a further extraction of the chips was not wanted the plug (B) was removed, then the wad of cotton and the extracted chips were dropped from the inverted cell on to a piece of paper and allowed to stand exposed over night. By the next morning all the adhering SO_2 had disappeared and the chips were ready to be subjected to the usual control tests. A typical log sheet obtained in using this apparatus is as follows:

May 8, 1923.

Extraction YS2—40°C.—1⅓ hr. periods
3 treatments

Weight of raw chips taken			2227.0 g.
Treatment No. 1	9:15 a. m.	42°C.	
	10:35	43	
Treatment No. 2	11:00	44	
	12:00	40	
	12:20	42	
Treatment No. 3	12:45	43	most of time at 39-40°
	1:00	39	
	2:07	42	

Control test on chips YS2 May 10, 1923

Benzene residue	0.32% (oven dry basis)
Alcohol residue	1.22% (oven dry basis)

Resin yields from YS2

Treatment No. 1	61.2293—59.8126	1.4167 (this value is probably low because of a slight loss—estimated at 0.1 g.)
Treatment No. 2	49.9052—48.9913	0.9139
Treatment No. 3	29.6916—29.1321	0.5595
Total resinous matter		2.8901 g.
Calcd. amt. of benzene residue in 227 g. chips		2.52 g.
Calcd. amt. of benzene residue left in chips after 3 extractions		0.57 g.
Benzene residue removed (calcd.)		2.00 approx.

The resin material obtained and weighed in each case was the residue from the respective liq. SO_2 extracts after the SO_2 had been allowed to evaporate off at atmospheric pressure. Before all the SO_2 had disappeared the extract was transferred from the large beaker in which it had first been placed to a tared 250 cc. beaker. When all the SO_2 had gone usually a small amount of water was left. This was readily poured off from the resinous residue which adhered to the bottom and sides of beaker. This residue was brought into solution with a small amount of 95% alcohol. Slow evaporation with simultaneous turning of beaker and assisted by blowing a slow stream of warm dried air causes a quick deposition of the resin in the form of a fairly uniform and moderately thin film. The blowing of the dry warm air further for quite a time was fairly effective in removing the last traces of moisture and volatile substances such as terpenes which gave evidence of being present.

Influence of Temperature on Extraction

A series of experiments was made to study the effect of temperature (and corresponding pressure) on the completeness of removal of resinous matter from the chips "Y." A summary of results of these experiments is given in Table 2.

Table 2. Results on extraction of chips "Y" with liq. SO_2. (These results are all reduced to the basis of 197.0 g. of oven dried chips in each case)

Extra. No.	Raw Chips	YS2	YS3	YS4	YS5
Temp. of extn.	°C	40	31	14	0
Length of each treatment (hr.)		1:20	1:40	2:05	2:15
1st treatment g.		1.61	1.35	1.51·	1.06*
2nd treatment g.		0.97	0.89	0.77	0.60
3rd treatment g.		0.59	0.60	0.42	0.39
Total extractives		3.17	2.84	2.70	2.05
Benzene sol. in residual chips	1.36	0.32	0.31	0.41	0.31
Alcohol sol. in residual chips	1.27	1.22	1.06	1.26	0.96

· time = 3.15 * time = 3:45

While in these experiments it is to be noted that the extraction intervals were not the same in each case, it is apparent that the quantity of resinous matter removed when working at various temperatures between 0° and 40°C. does not vary appreciably when considering the direct weights of resinous matter isolated and the variation is still less appreciable when considering indirectly the percentage change in benzene soluble constituents of the chips. The natural inference from these results is that in commercial operation extraction of chips at relatively low temperatures (0° to 15°C.) with correspondingly low pressures will give as efficient an extraction and perhaps a more desirable extraction (from the standpoint of purity of rosin obtained) than when working at higher temperatures and pressures. If this conclusion is correct many of the engineering details involved in working out the process will be greatly simplified.

Removal of Adhering Liquid Sulphur Dioxide from Chips

At the end of extraction YS3 the following data was obtained which bears on the removal of SO_2 from chips after extraction of resinous matter has been terminated. This data follows:

After the last treatment, when the free SO_2 was drawn off, the cell was closed except for connection with a water operated vacuum pump. Readings of weight, time and vacuum maintained were made over an interval of about two hours.

The following readings were taken:

May 12, 1923.

Weight of SO_2 removed	817 g.
Weight of cell and contents after removal of SO_2 (free)	8,460 g.

Time	Vacuum in cm. (Hg)	
5:40 p. m.	4	
5:45	26	
5:50	39	
5:55	49	
6:00	53.5	frost present on outside of cell up to this point changed to water
Weight of cell contents now		8,200 g.
6:06	vacuum again started	
6:10	52	
6:20	59.5	
6:30	62.5	
6:35	62.5	
Weight at this point		8,078 g.
6:42	vacuum on again	
8:00	68	
Weight		7,917 g.
Weight of cell empty and plugged		7,575 g.
Weight of air dried chips on May 14th		235.5 g.

Table III. Summary of Results on Evacuation.

Time after discharge	Vacuum in cm. (Hg.)	Wt. chips plus SO_2	Weight SO_2	% SO_2 if dissolved in 1357 g. water
0	0	885	649.5	32.4
:20	55.5	625	389.5	22.3
:50	62.5	503	267.5	16.5
2:08	68.0	342	106.5	7.3

Capacity of cell=1357 cc.

From the above the logical thing to do in commercial operation would be to drive out the adhering liquid SO_2 by warming with superheated SO_2 vapor. For instance it would be simple to blow a stream of SO_2 gas at 5 to 10 lb. pressure (gage) and superheated to 70-90°C. through the digester containing chips right after having drawn off the liquid SO_2. After a moderate length of time the chips would be entirely free of adhering liquid SO_2. The first three or four extraction treatments should remove most of the moisture from the original chips as well as the major portion of the resinous matter, consequently after the above blast of hot SO_2 gas the chips should on adding a cooking liquid of proper predetermined strength give no appreciable or uncontrollable change in the strength of that liquor which otherwise might take place due to variable amounts of moisture or liquid SO_2 present in the uncooked chips.

A Suitable Lubricant for Extraction Equipment

One of the engineering difficulties encountered in the design of a plant to use the liquid sulphur dioxide extraction process arises in the selection of a lubricant for valves, pumps, etc., that would resist the solvent action of liquid sulphur dioxide, as liquid sulphur dioxide is an excellent solvent for most oils and greases. Many lubricants were tried only to be discarded promptly as impossible of use in a plant.

The best lubricant for this purpose was found to be a mineral oil of the type of those used in medicine. One labeled "Squibb's Mineral Oil Heavy (California)" was found to yield but 1.4 per cent of its weight to a total of five additions of sulphur dioxide, each addition amounting to about ten times the volume of oil taken. Consequently this, and possibly other lubricants to be discovered later, will be found to serve satisfactorily.

Some standard sized chips (F) have just been obtained from an authentic specimen of longleaf pine (*Pinus palustris*) through the kind cooperation of the U. S. Forest Service officers in the Florida National Forest and the York Haven Paper Co. of York Haven, Pa. Further experimental work will involve the use of these chips and will greatly aid us in working out all the technical details of a process for commercially applying this method of treatment to woods of a highly resinous character. These chips have been found to contain a *benzene residue* of 13.7 per cent; so in using this species of wood we will obtain doubtlessly very generous yields of rosin and turpentine and as the fiber is of excellent character we expect to obtain a sulphite pulp of good quality.

Apprentice Indenture

The following is reprinted from PAPER TRADE JOURNAL early in 1893 and is said to be the indenture of the father of Joseph Jordan who invented the refining engine now known as the jordan.

This indenture, made this twelfth day of October in the year of our Lord one thousand eight hundred and ten, witnesseth that Joseph Jurdin residing in the township of Newark in the county of Essex, State of New Jersey, aged Nine years, Ten Months and Eight days, son of John Jurdin of the Town, city and State aforesaid, hath of his own free and voluntary will, by and with the consent of his father aforesaid, signified by his signing these presents, placed and bound himself an apprentice with Robert Bird of the City and County of New York, merchant.

The said Joseph Jurdin to be taught the trade mystery and occupation of a papermaker and after the manner of an apprentice to serve from the day of the date hereof for and during and until the full term of Eleven years one month and twenty-two days next ensueing, fully to be completed and ended, during all which term the said apprentice, the said master will and faithfully shall serve, his secrets keep, his lawful commands everywhere readily obey, hurt to his master at any time he shall not do nor willingly suffer it to be done by others, but of the same to his power forthwith give notice to his master; the goods of his said master he shall not embezzle nor waste, nor them lend without his consent; at cards, dice, nor any other unlawful game he shall not play; taverns he shall not frequent, fornication he shall not commit, matrimony he shall not contract; from the service of his said master he shall not at any time absent himself without leave but in all things be as good, faithful apprentice shall and will behave and demean himself towards his said master; the said master the said apprentice the said trade mystery or occupation of a paper maker shall and will teach or cause to be taught well and sufficiently in the best way and manner he can shall also find the said apprentice sufficient meat, drink, washing, lodging and wearing apparel fitting for an apprentice during the said term of Eleven Years, One Month and Twenty-two Days. The said master also agrees to give the said apprentice one-quarter's evening schooling in each year during his apprenticeship and the said John Jurdin doth for himself, his heirs, executors and administrators hereby covenant and agree to and with the said Robert Bird that the said Joseph Jurdin the within named apprentice shall and will in all things keep and perform all and singular the several matters and things in this indenture mentioned in his part to be kept done and performed. In witness whereof the parties to these presents have hereunto interchangeably set their hands and seals the day and date first above written.

Robert Bird (seal)
his
Joseph X Jurden (seal)
mark
John Jordan (seal)

Signed, sealed and delivered in the presence of

Garret Von Houten,
Edmund Langstroth.

Hawley Paper Plant Burned

OREGON CITY, Ore., October 15, 1923.—Plant B of the Hawley Pulp and Paper Company was destroyed by fire last week. The blaze started in the heater and machine room and quickly spread to other parts of the plant. The loss is estimated at $750,000.

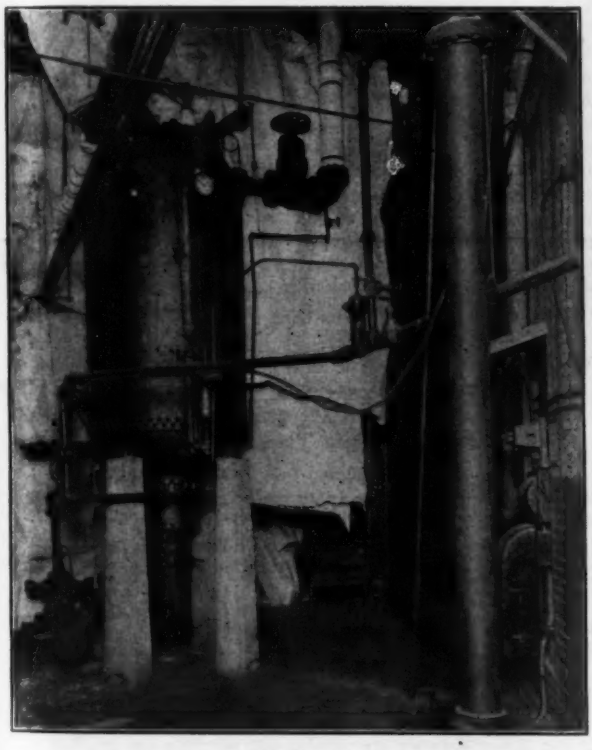
THE ELECTRIC STEAM GENERATOR

By E. M. Horstkotte, Power and Mining Engineering Dept., General Electric Co.

During the coming winter and probably for some time afterwards, fuel economy and existence are going to be synonymous terms for the industries of this country. Therefore particular interest attaches to any means of generation power, especially necessary steam, for heating or process work, that will materially cut the consumption of coal or fuel oil.

Such a means has arisen in the electric steam generator, which has already demonstrated its value in certain industries, and whose field in this line of service is enormous. Central stations both in the United States and Canada have already found the steam generator a splendid means of utilizing excess power. Pulp and paper mills in both countries are using it for "ironing out" their load curves, and for using surplus energy to produce necessary press and heating steam. Many of them have surplus electrical energy throughout the day, and on Sundays and holidays that can thus be turned to good account.

After considerable investigation, covering the study of all existing types, the General Electric Company has designed an electric

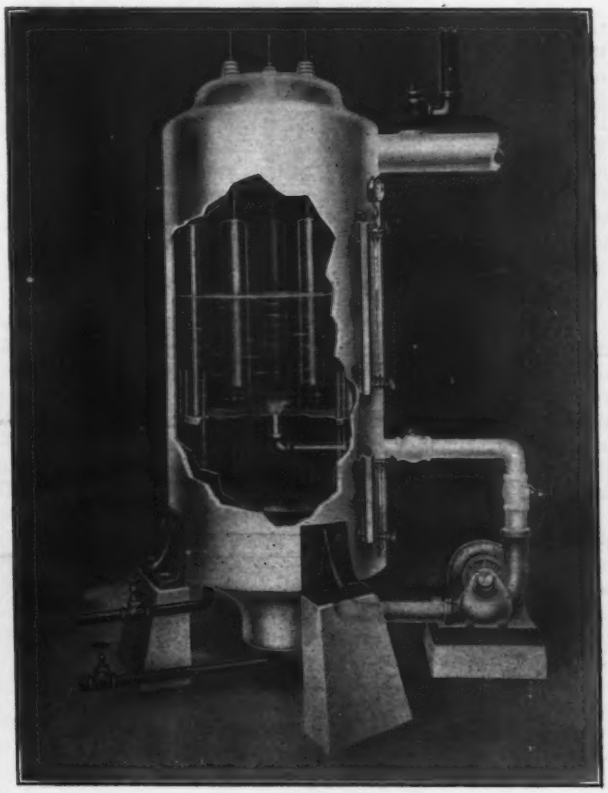


Electric Steam Generator

steam generator, in which first consideration has been given to the three great requirements of its service, simplicity, safety and reliability. The equipment as installed, may be said to form a complete steam generating plant which is capable of operating with minimum attendance, is compact, and easy to install. It requires power at the approximate rate of 10 kw. for every boiler hp. of steam generated.

The complete equipment consists of the shell with supporting feet, the electrodes, insulators, steam and water gauges, safety valve, circulating pump and motor, and a panel on which is mounted the control equipment.

The tank, or generator shell is mounted vertically, and divided horizontally into two compartments, the upper known as the electrode compartment, where the actual generation of steam takes place, and the lower forming a self-contained hot well. Water entering the hot well from the feed water pipe is forced into the



Sectional View

upper chamber by the motor driven centrifugal pump located on a short external pipe line. From this chamber it flows back into the hot well through a number of small holes on the outer circumference of the dividing plate. This arrangement provides a continual circulation of heated water, the water level in the electrode chamber being held at the desired level by setting the valve in the circulating pump discharge line.

The upper, or electrode chamber, where the steam is generated, contains three large round iron electrodes rigidly supported from the roof, the current carrying supporting rods coming in through specially designed insulating bushings. These bushings are provided with a small duct in the top leading to the outside air. Thus if steam does succeed in leaking through the packing into the upper section of the bushing, it passes out freely instead of creating a pressure that might blow out the side of the insulator.

The Electrical Operation

The electrical operation somewhat resembles that of a three phase arc furnace. Normally the electrodes are submerged in the water, and the three phase current passes through the water to the sides of the tank or from electrode to electrode. The steam is generated by current flowing through the water, which is of high resistance. The mechanical circulation of the water has been de-

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scribed, but some of the operating features arising from it are of sufficient interest to merit further description. One result is that the temperature of all the water in the system is practically uniform. If the steam pressure lowers due to an increased demand, rapid steam generation due to the high temperature of the water, and the degree to which the electrodes are submerged, quickly brings the pressure up again.

Another Operating Feature

Another operating feature is that since the water level is maintained by the adjustment of the throttle of the circulating pump, the energy consumption of the generator is not dependent on the operation of the feed water pump. The supply of water in the hot well is regulated by an automatic feed water regulator. Furthermore, when it is desired to reduce the load the generator does not have to be blown, which means that water does not have to be pumped in subsequently against full pressure. The only energy losses in the circulating pump are the motor losses and the pump and bearing friction losses, therefore all energy delivered to the pump eventually goes into heat in the water, and there is no wastage.

Control Equipment

The control equipment consists of an incoming line panel carrying automatic circuit breakers, the necessary meters and instrument transformers and the control apparatus for the circulating pump. Since the kilowatt capacity of these boilers is comparatively large, the devices used on the board are of the same heavy construction and have the same current carrying and rupturing capacity as those used in substations, and heavy feeder circuits, tie lines, etc., for similar duty.

Of vital importance in this, as in all apparatus for the production of steam is the safety factor. For several reasons, soon explained, it may be said that the safety factor of the steam generator is even greater than that of the average boiler, highly developed as the latter are. The safety valve takes care of excess pressure, as on the standard variety of boiler, and the method of protecting the insulators has been described. Further contingencies are taken care of by what may be described as the interlocking of the various controls. Suppose, for example, the circulating pump ceases to function, from voltage failure or other cause. The water in the electrode chamber simply drains into the hot well, and since the electrodes are no longer submerged, no more steam is generated. Also, on resumption of the pumping, since there is no hot metal surface in the electrode furnace, there is no danger of an explosion similar to that due to a hot crown sheet in a boiler. Also when the water drains out, there is no danger of burning any part of the electrode chamber because when there is no water there is no heat generated. Too high a level of the water is prevented by an emergency drain of large diameter whose top is some distance from the top of the electrode chamber.

Special Value to Paper Mills

A consideration of the steam supply problems of industrial plants has disclosed many cases where the steam generator would prove a valuable adjunct to the plant equipment, either in utilizing excess electric power formerly wasted, or in providing process steam directly where it is needed. In the case of paper mills there are at least fifty-nine days in the year when the plant is idle, yet a supply of steam must be maintained for various purposes. Ordinarily this means that a certain amount of steam must be kept up in the boilers and that, in addition to the fuel, necessitates the presence of firemen and engineers over the idle period. Should an electric steam generator be installed it would operate practically without attendance, except for a cursory inspection by a watchman, and its use would permit the banking of the fires if coal were used, or the shutting down of oil fired boilers when the plant was idle.

The economy effected in such instances is too obvious to require comment.

Many mills purchase power on a maximum demand basis and here the savings effected by the steam generator are just as tangible, but arise from a different cause. Suppose for example, a factory contracts for 10,000 kw. maximum demand. It is perfectly possible that, owing to one cause or another, the load factor for the year may be as low as 75 per cent. In such a case 2,500 kw years, or 21,900,000 kw. are being paid for but not used. By installing an electric steam generator to utilize this energy the fuel bills would be cut materially, as follows: Assuming a coal fired boiler with an efficiency of 65 per cent and coal with 13,000 btu per pound, for every 4,953 kw hr. used in the generator one ton of coal would be saved, or 4,421 tons per year. If oil fired boilers are used, operating at 75 per cent efficiency, and using oil weighing 8 pounds per gallon with 18,700 btu per pound, for every 32.9 kw. hr. there would be saved one gallon of oil, or 665,650 gallons per year. These figures are calculated on the basis that all the excess energy would be utilized. If only 75 per cent was so utilized, the savings would still be enough to more than justify the installation of a steam generator.

Other Possibilities

In addition to these, other possibilities have presented themselves. Central stations have found it of mutual advantage to themselves and their customers, to install and maintain one of these generators in the customer's factory, metering the steam and charging the customer according to the amount consumed. Industrial plants supplied with power by their own hydro-electric generating stations can use the excess energy available during high water periods to generate steam, and save fuel. Another field is in factories needing small amounts of process steam at widely separated points. It would be much more economical to install a generator at the point of utilization than it is to transmit steam for long distances from a central source of supply. As time goes on and the knowledge of the advantages of the electric steam generators is more widely spread, doubtless many uses will be found for it which are undeveloped at present.

Fast Machines Thirty Years Ago

The following which appeared in PAPER TRADE JOURNAL in October, 1892, will be of interest to the present generation of papermakers.

BALLSTON SPA, N. Y., September 19, 1892.

Editor PAPER TRADE JOURNAL:

In these days of fast running machines we hear considerable about 300 feet and over, but we have come to the conclusion that 300 feet and over are run by wind.

Hearing much about a certain mill we took pains to go and see these greased lightning machines and on arriving there saw one machine running 230 and the other 220 feet per minute, which is 20 feet slower than we are running and we don't call it a fast machine either. Speaking to the superintendent he informed us that the machine will run 340 feet just as well and as safely as 240 and will get to that speed as soon as the new smoke stack is finished which is to be 180 feet high. At first they only intended to build that stack 150 feet, but thought they could get more speed on the machines by adding 30 feet as it would make the draft on the machines so much better. (This mill is in the state of New York and we understand it will run at a Nancy Hanks gait after this stack is finished.)

It is all well enough to run at 300 feet a while until the machine room is full of broke and then the machine drops back to 210 feet. Those old gags used to go but they don't go now.

TWO PAPERMAKERS.

A MODERN SULPHITE MILL IN FINLAND

By Gosta P. Genberg

The scope of this short article is to give the American reader a brief resume of the processes employed in a modern Finnish sulphite mill, making strong and easy bleaching pulp for export, principally to England and U. S. A. The mill in question is one of the largest and up to date mills in Europe, the operation being started in 1921. The daily production is 120 metric tons of high grade Ritter-Kellner spruce sulphite pulp, 65 per cent of which is easy bleaching and 35 per cent strong sulphite.

The Wood

The wood used in this mill is exclusively spruce grown in northern Finland, which is closely identical to the white spruce grown in northern U. S. A. and Canada. The trees are cut in the late fall and winter and floated down the river to the mill during the following summer. The logs are hauled up from the river by means of a telfer conveyor and stored in an enormous wood yard, where the wood is allowed to season for about one year and a half before it is pulped. It is an imposing sight to see the wood yard of a mill of this size, where the wood is stored with the utmost skill, and with that point in view to obtain the most efficient drying and to prevent the deterioration of the wood by decoy. The wood yard has stored at this time about 36,000,000 feet of pulpwood and about 30,000,000 feet of fuel wood. The wood when taken to mill for pulping has a moisture content of 22 to 26 per cent and a resin content of 1.50 to 1.80 per cent.

The Wood Room

The wood is barked in four Stalnacke barking machines in 10-ft. lengths, handbarked, split and cleaned when necessary, and chipped in full length. Oversize chips are crushed in a disintegrator and rescreened. Close attention is paid to the thorough cleaning of the wood and to the uniformity of the size of the chips. The loss of wood in the wood room operations is 15 to 18 per cent by weight. The average weight per cord of the wood entering the wood room is 2,746 lb. air dry. The chips are blown by a centrifugal fan to concrete chipbins, located above the digesters.

The Acid Plant

Sulphur is burned in four rotary burners and the gas, analyzing 12 to 15 per cent SO_2, is cooled in two very efficient coolers of the system Mörck. Three concrete towers filled with Finnish or Danish limestone are used. The towers, which are 130 ft. high and with a square cross-section of 67 sq. ft. each, are connected in parallel. An acid is made of about the following composition:

	Per cent
Total SO_2	3.68
Free SO_2	2.27
Comb. SO_2	1.41
CaO	1.23

Four concrete cylindrical acid tanks are used, two of which serve as storage tanks for the raw acid, one as a reclaiming tank, from which the reclaimed acid overflows to the fourth, which is the storage tank for the cooking acid. The relief from the digesters is injected in the reclaiming tank; in this way the back pressure caused by the acid in the tank is kept constant. The sulphur consumption is 220 to 240 lb. per ton of pulp and sometimes even as low as 200 lb.

The reclaimed acid from the above mentioned raw acid has the following analysis:

	Per cent
Total SO_2	3.97
Free SO_2	2.91
Comb. SO_2	1.06
CaO	0.93

The Digester Room

Six stationary insulated digesters of 7,519 cu. ft. volume each are used. The steam for cooking is exhaust steam from steam turbines with a back pressure of 90 lb. and with a superheat of 200 to 250° C. The chips are injected into the digester with steam. The acid is pumped in from the bottom and the digester is filled to the top; 5,472 cu. ft. of acid is required per cook; the steam is supplied by means of two 3-in. pipes; the direct cooking method is used.

The cooking is done as follows:

The digester pressure is taken up to 60 lb. in 2 hours, after which time the top relief is opened sufficiently to raise the temperature to 100° C. after 3½ hours. The digester is shut off at 115° C. for 1 hour or more, depending on the moisture content of the chips. The steam and relief valves are then opened again and the temperature is raised to 135° C. after 8 or 9 hours at a pressure of 65 lb. gage, The iodine test at this point in the cooking is expected to indicate about 1.10 per cent SO_2, when an acid of the above-mentioned composition is used. The digester is now closed and kept at this temperature and pressure until the color and the smell of the liquor indicate that the pulp is of the quality desired, and the iodine test of the liquor shows about 0.30 per cent SO_2 for easy bleaching pulp or 0.50 per cent SO_2 for strong. This requires about 5½ to 6½ hours from the shutting-off of the digester. The top-relief is now opened and the gas relieved until the pressure has dropped to 28 pounds. In the beginning of this "gassing," the vapors leaving the digester hold about 35 per cent SO_2, and at the end about 14 per cent. About 740 lb. SO_2 is recovered per cook by this procedure. When the pressure is down to 28 lb., water is pumped into the digester through the top valve, and at the same time a liquor draining valve is opened in the bottom of the digester. The pulp is in this way washed in the digester, and when the pressure has dropped to zero, the bottom cover is opened and the pulp dumped in a concrete pit, pulp remaining in the digester being hosed out with water. The time required for each of these operations is in the case of strong pulp:

	hr.	min.
Filling of chips	0	40
Filling of acid	0	50
Cooking (to 0.50 per cent SO_2)	14	30
Gassing (to 28 gage)	1	20
Liquor draining and washing	1	20
Dumping	..	40
Total cycle	19	20

For easy bleaching pulp the cooking time is 16 to 18 hours. The steam consumption per cook averages about 50,000 kg., corresponding to 2.8 lb. steam per lb. for strong pulp or 3.1 lb. per lb. for easy bleaching.

The Screen Room

After the final washing and draining in the pit, the stock is shoveled by hand on to screw conveyors, two for each pit, which move the pulp to two pulp separators, one for each drying machine. In the separators the fiber bundles are broken up, but uncooked chips are not split as in the case of blowing at high pressure, in this way preventing shivey pulp. After the separators, the pulp passes to two combined knotter screen and rifflers of the system Mörck. After the Mörck knot catcher, the pulp is passed to a header and is distributed to 12 Spangenberg screens, 6 for each machine, and is finally screened through two sets of flat screens. After screening, the good stock passes to two sets of pulp thickeners, while the screenings are refined in kollergangs and converted into wrapping paper or board. After passing the pulp thickeners, the stock is pumped to the vats of the drying machines, the backwater from the thickeners being used for diluting the pulp in the separators. The amount of screenings is 1.50 per cent for strong pulp and 1.30 per cent easy bleaching.

The Machine Room

Two drying machines 120 in. wide with a speed of 65 ft. per

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minute are used. For heating the driers, steam from a Ruths vapor accumulator is employed. About 2.2 lb. of steam per pound of pulp is required for drying. The dried pulp is cut in sheets 29¼ x 24½ in. and packed in bales of 167 kg. each for shipment.

Yield

The yield per digester averages 18 metric tons of strong pulp or 16 tons of easy bleaching, which correspond to 19.8 U. S. tons of strong or 17.6 tons of easy bleaching pulp per digester. In other words, there is obtained per cu. ft. digester volume, 5.3 lb. strong or 4.7 lb. easy bleaching pulp.

Per metric ton of strong pulp 7.5 cu. m. of rossed wood is required and per ton of easy bleaching 8.0 cu. m. Transferred in the American system, this means a yield of 1,065 lb. of strong pulp or 998 lb. of easy bleaching pulp per cord of rossed wood.

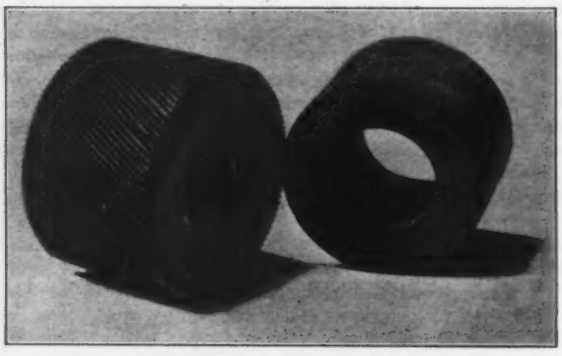
As mentioned above the average weight per cord of spruce as used in this mill is 2,746 lb. air dry. Calculating with a total woodroom loss of 18 per cent, the weight of wood per cord actually reaching the digester as chips is 2,252 lb. If no allowance for any further losses is made, the yield of screened pulp in per cent by weight of the wood actually cooked is 47.3 per cent for strong and 44.3 per cent for easy bleaching pulp.

NEW MANDREL FOR MAGAZINE GRINDERS

W. L. Glass, Pulp Mill Division, Kewatin Lumber Co., Ltd., Kenora, Ont.

In some types of grinders, the sharpening lathe has to be placed in such a position as to be at a disadvantage as far as safety and efficiency is concerned. This is particularly true with a grinder the type of the double magazine, which has the sharpening lathe on top and between the magazines.

We experienced considerable difficulty in our plant here in securing a mandrel that was satisfactory and I understand that other plants using this type of grinder have the same trouble. This is due to the fact that the stone must be sharpened from on top and between the magazines. Using a solid mandrel of the expansion or screw type, places you in a position where you are liable to meet



New Mandrel for Grinders

with the serious accident of breaking the top finger bars and cracking your stone, from the mandrel dropping on it.

The speed at which the burr travels when sharpening a stone 62 inches in diameter and the pressure from the lathe makes it a common occurrence for the mandrel with the burr attached either to break the burr holder or to jar loose while traveling across the face.

In the pocket type of grinders, if an accident of this sort occurred the burr simply dropped into the stockpit below.

After many experiments with different types of mandrels we perfected one that has proven the most efficient of any I have used, not only for safety, but for the cut produced on the stone. This mandrel is made from oak, or other hardwood, into a core whose outside diameter is just a fraction under the size of the burr and with an inside diameter is 2 inches.

A small notch is cut into the inside of the core and an iron wedge, 1½ inches wide, and ⅛ inch thick and the length of the burr, driven in. The exact center of the core is found and a pin the size of the burr holder pin is securely clamped into that position. The mandrel is placed on any flat metal surface and babbitt is poured around the burr holder pin which is in the exact center of the 2 inch hole in the oak core. When cooled, the pin is removed and the mandrel is completed, with the exception of soaking in water with the burr attached, so that the oak core will expand and tighten. The wedge is used to prevent the babbitt becoming loose from the wood.

The mandrel will outlast the life of a burr and the only part wasted is the hard wood core. The babbitt is easily knocked out and melted over, while the wedge will last indefinitely. Several dozen of these oak or maple cores can be turned out on a good lathe in a short time and can be used over again a few times.

Advantages

This type of mandrel has several distinct advantages over the solid mandrel of the expansion or screw mandrel.

1. If the pin breaks or mandrel becomes loose and drops on the stone it will be broken up before the finger bars or stone is damaged.
2. The hard wood core puts enough spring to the burr to prevent any tearing action, such as occurs with a solid steel mandrel. This small amount of spring enables the burr to put as near a perfect cut on the stone as is possible.
3. The close fitting babbitt bore prevents the burr from jumping or wabbling as is the case when roller bearings are used. Instead of the rough grinding noise made by the burr when using a solid steel mandrel with roller bearings, this hard wood mandrel with babbitt bearing sings across the stone without any vibration.
4. The cost of these wooden mandrels is practically nothing as compared to the solid steel type with roller bearings. One man can babbitt enough burrs in two hours to last the average ground wood mill a week.
5. Less shims and slivers are produced and higher production per cord is secured due to the even cut on the stone.

Student Takes Up Paper Business

[From our regular correspondent.]

Boston, October 15, 1923.—Ferdinand de la Macorra, member of a prominent Mexico City family, recently graduated from the Massachusetts Institute of Technology, this city, will leave here shortly for his native land where he intends to put into practice in his father's large paper factory some of the theories he learned while attending the Institute.

When asked about his going to Mexico City, Ferdinand said: "I doubt very much whether I will be able to suggest any worth-while changes in the conduct of my father's factory. Though few Americans may suspect it, many of the Mexican factories are very modern.

"My older brother has for several years made annual trips to this country and personally inspected the big paper factories without finding a single instance where American methods were an improvement over ours. I, myself, have visited many plants in this country. None, however, is as large as the one of which my father is the head.

"One of your big paper corporations is, I find, conducting its business on a cheaper basis than is the case with us, but the reason for this is that this factory confines its product to one line, whereas we manufacture many distinct lines."

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

HIGH WAGES, INCREASED PRODUCTION, DECREASED COSTS*

WILLIAM BAUM, PRESIDENT, WILLIAM BAUM & CO., CONSULTING ENGINEERS, MILWAUKEE, WIS.

Again we are entering a period of boom times. How long it will last depends almost entirely upon keeping production costs down to the level of the average consumer's income. A shortage of labor threatens present wage levels. Unless we succeed in keeping costs down for the next six months, we shall again be spiraling around the vicious circle of mounting wages and mounting prices. What policy and methods are available to maintain high wages and keep operating costs down to a safe level? It has been estimated that the average working force does not more than 75 per cent of a "fair day's work," and it is common knowledge that the worker's attitude is one of indifference and unwillingness. In view of the increasing competition the situation is not without serious consequences and demands our careful attention.

In the old days of "simple industry," when a shoemaker made a pair of shoes to order, fitting each customer individually, two or three apprentices lived in the master's home as members of the household. They owned their tools, took pride in workmanship, and their social position was respected in the community. They did 100 per cent of a "fair day's work."

Great Change in Eighteenth Century

With the Eighteenth Century begins a period of industry which separates it from all other industrial periods. This great change, often called the mechanical revolution, was brought about by important inventions and the harnessing of natural resources. In a little more than a century, man had made vaster strides in material conditions than during the whole long interval between the days of King Tut of Egypt and Napoleon.

With the introduction of the factory system, the mental attitude of the worker undergoes a change. His pride in workmanship wanes. He feels himself to be an impersonal cog in the wheel. He fears that he does not receive a proper share in the reward. The manufacturing class splits into employers and employes, the latter drifting to a status of class consciousness. Karl Marx advocates the class war of the poor masses against capitalism and property owners, the outcome of which he lays down in a philosophy along the following lines:

The capitalists would gather money power into fewer and fewer hands and concentrate their power into a form seizable by the workers, whose class consciousness and solidarity would be developed by the process of organizing industry. The workers would seize the capital, individual property would be restored based upon common ownership. This would mark the end of the "capitalist system," but not the end of capitalism. State capitalism would replace

FIG. I

private owner capitalism. All Russia is now a huge experiment of the dictatorship of the proletariat; the result of several years' operation being too well known to be mentioned.

Result of Modern Materialism

As the result of modern industrialism, management finds itself

*Address delivered at Annual Convention of National Paper Box Manufacturers Association at Indianapolis.

confronted with mistrust in the minds of labor, and we are feeling the consequences at a time when cost reduction and improvement of quality may be the only means of meeting competition.

Events in recent years have brought out the importance to have men work together effectively, but business is not as effective as it could be. Who is responsible for this ineffectiveness? Part of the responsibility rests upon labor, with its enmity toward capital, its suspicions and fears and distrusts, its limitation of output and occasional surrender to poor leadership. So also part of the responsibility rests upon capital and management, its lack of leadership in managing labor, its wastes and mistakes. As between the two parties, the greater responsibility rests with the management, for it holds the directing power. *The solution of the problem must rest on a new philosophy of management, a new responsibility toward labor.*

The new focus in administration is upon the human element. The new center of attention is the individual person. This change comes about fundamentally for no sentimental reasons, but because the enlistment of human co-operation of the interest in the good-will of the workers has become the crux of the production problem. There are evidences of a new outlook, a new purpose, a new determination to harmonize the aims of our industrial life with lofty and human aspirations. Says young Rockefeller, "The day has passed when the conception of industry as chiefly a revenue-producing process can be maintained. To cling to such a conception is only to arouse antagonism and to court trouble. In the light of the present every thoughtful man must concede that the purpose of industry is quite as much the advancement of social well-being as the accumulation of wealth."

We have already seen that the enormous expansion of the manufacturing system made it difficult to maintain individual relations between the employer and the employee. We must also mention the tendency to standardize under which the individual worker does not put much of his own thought or his own skill into the job, but simply repeats mechanically a routine marked out by the patterns or automatic machines. There is finally the tendency to specialization under which the individual worker seldom turns out any complete article, but only performs some part of the process or operations, passing the work on to the next person.

Welding Workers Into Classes

The almost overpowering influence of these tendencies are to weld workers into classes, unless the counter-balancing influence of another principle, that of the human factor, is provided. Those who deny these fundamentals encourage the preachers of radicalism who would proceed along unsound lines.

It is distinctly the task of the management to apply constructive methods which give promise of better results. Exact knowledge of facts must be substituted for guess-work or arbitrary rules. Scientific principles of management must be applied to all business. We must install the best machinery and tools compatible with economy, overhall existing machinery, determine its most effective feed and speed, continuous straightline production and eliminate fatigue, false motions and the duplication of efforts. We must define mana-

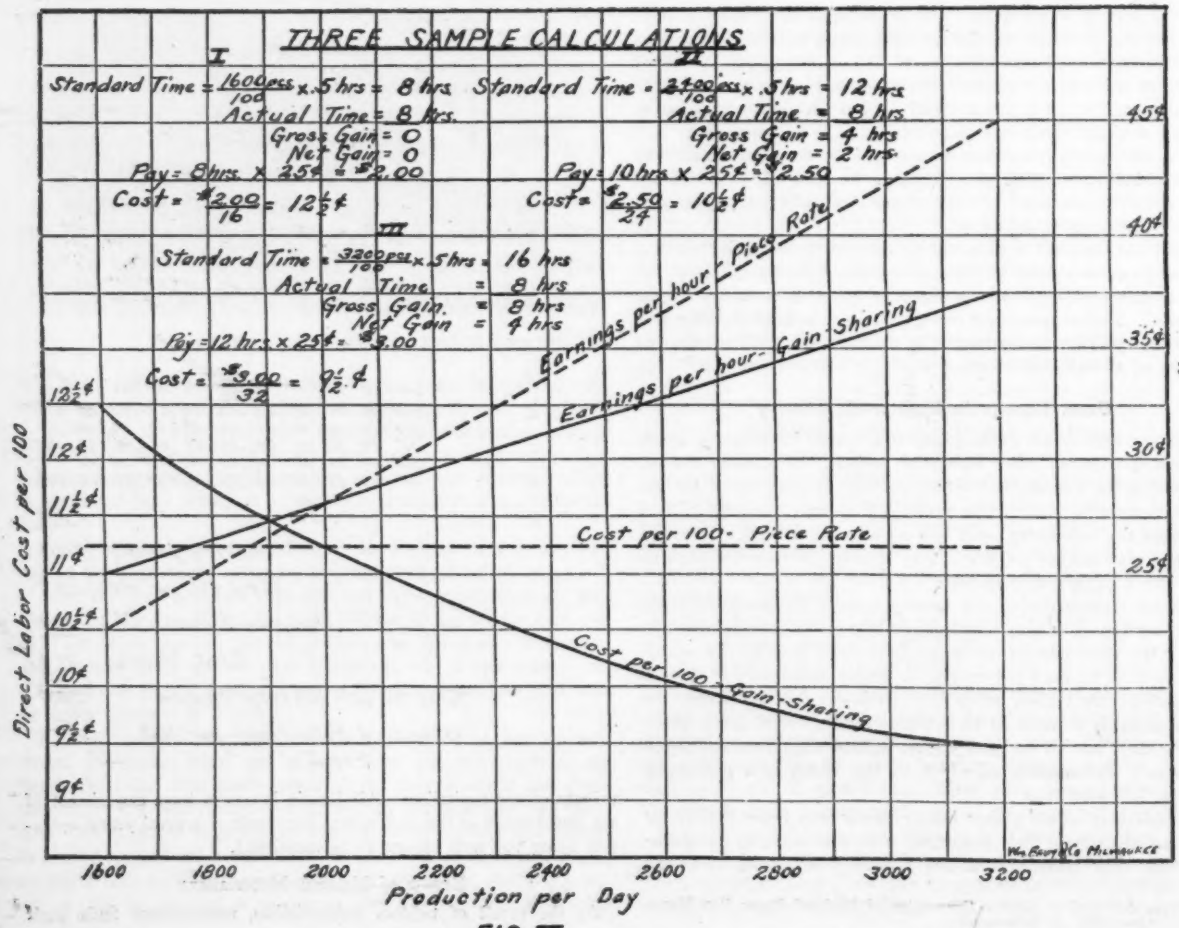


FIG. II

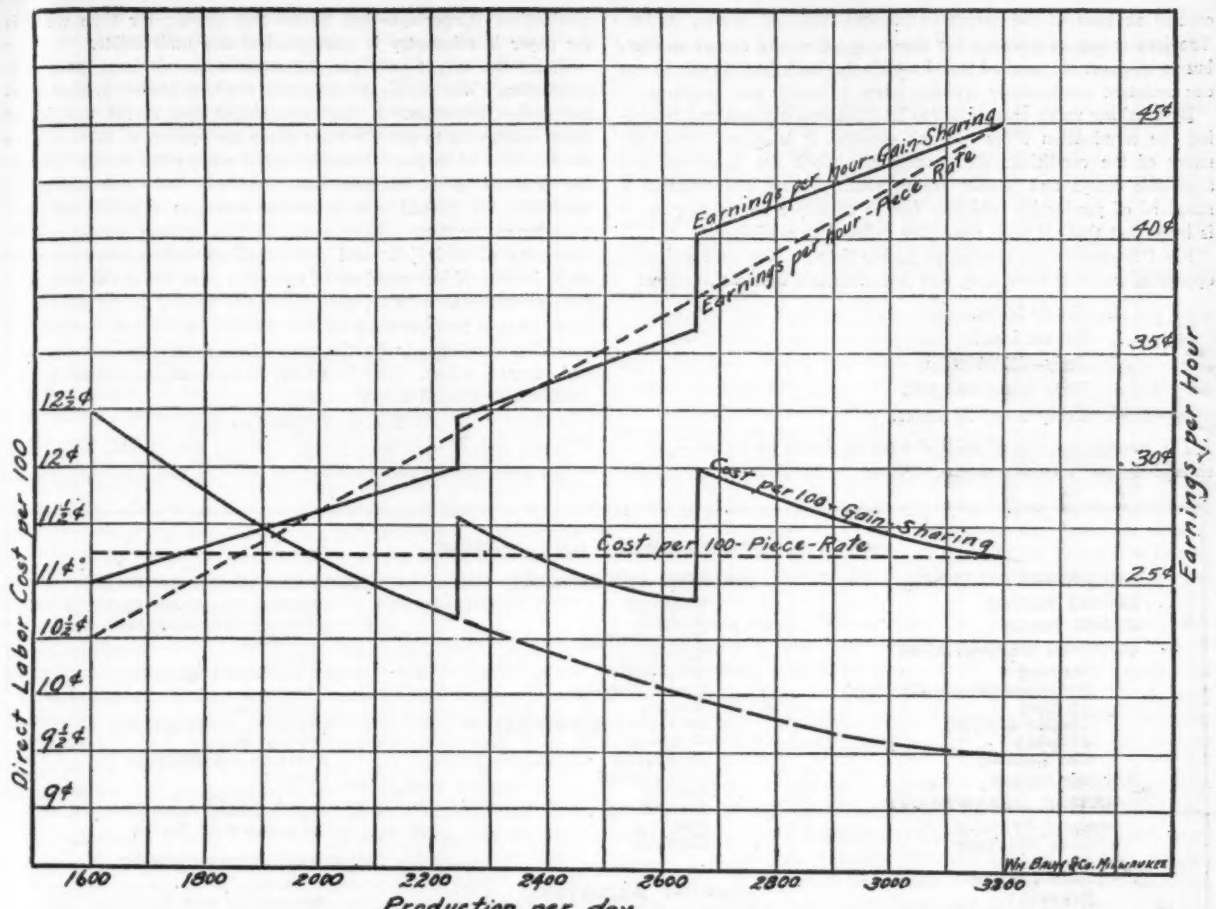


FIG. III

gerial functions, responsibilities and authority. We must aim at a simplification of record-keeping, accounting and the preparation of reports; introduce purchasing by specifications and at economical rates, determine the correct amount of stock on hand and analyze sales methods to stabilize the markets of production.

Your association is to be complimented on the progressive work which has been done with uniform cost accounting plans. This is a big step forward and means much to the members in charge of cost information. The same policy of setting up interchangeable production standards based on time rather than money, the latter fluctuating from month to month and according to locality, will be of great value in placing your industry in a strong position.

Principles Not New

The scientific principles are not new and are well understood by progressive executives. They constitute a part of a broader program designed to restore individual responsibility on the part of the workers. Says Herbert Hoover: "If we are to secure increased production and an increased standard of living, we must awaken interest in creation in craftsmanship and contribution of his intelligence to management. We must surround employment with assurance of just division of production. We must enlist the interest and confidence of the employees in the business and in business processes. We have devoted ourselves for many years to the intense improvement of the machinery and the processes of production. We have neglected the broader human development and satisfaction of the life of the employee that leads to greater ability, creative interest and co-operation in industry. It is in stimulation of these values that we can lift our industry to its high state of productivity, that can place the human factor upon the high plane of perfection reached by our 'mechanical processes.'"

There is at least one phase of management which has not caught up with the progress made in mechanical processes and business methods, namely, the important method of wage payment. The employer who says, "I pay the market rate of wages; what more can I do?" would not consent to buy cheap goods or poor machinery. So-called cheap labor is not always cheap. It is becoming a sign of poor management and a mark of disgrace to pay low wages. Many corporations are now priding themselves in being able to take their pick of the labor market and having a waiting list of desirable applicants.

Where the cost of material is high as compared with labor costs, high wages are often cheap if they contribute to a saving of material. On the other hand, where labor is a big factor, high wages often reduce waste of human efforts to a minimum. Wages are high if they do not return value. They must be considered low if they return value. *Wages should be measured in terms of production.* Most labor disputes hinge on the wage question and can be reduced only if the basis for setting wages is correct. We must have accurate standards of production.

Careful Analysis Required

The determination of equalized production standards requires a

careful analysis of the operation through time and motion studies. The idea is not to discover the fastest speed of the fastest worker, but to discover the normal speed which the individual or the group can maintain continuously without harm to health and happiness.

By breaking up an operation into its elemental motions and recording the termination times of each element, it is often found that many of the conditions surrounding the work are defective, that avoidable delays and wastes are present. Before determinating a standard of production which is fair to employer and employees, it is important that all such losses are reduced to a minimum.

Fig I illustrates the method of taking time studies on a stripping operation which is broken up into five elemental motions, namely:

1. Get 50 boxes.
2. Put on form.
3. Strip—fold bottom.
4. Turn in top and pile.
5. Carry away 50 boxes.

The termination time of each element as shown by a stop watch is entered in the vertical column. When the cycle is completed the times are entered in the second vertical column and so on. Ten sets of readings are made across the page and ten more sets on the lines below. This time study of 20 cycles is made on a good, an ordinary and a poor worker, so as to secure fair and proper averages. The differences between these continuous readings give the actual elapsed times of each element and are shown in the upper figures between the horizontal lines. The figures at the extreme right give the average elemental times, and their total constitutes the basis for setting a production standard, allowances being made for unavoidable delays, fatigue and variations in operating conditions. It will be observed that some readings are stricken out and eliminated.

The art of taking time studies requires skill, experience and an understanding not only of the operation, but also of human nature, and a strict adherence to the highest principles of ethics and honesty. The employees must be approached in a spirit of absolute fairness and square dealing if opposition and resentment is to be avoided.

After the standards of production have been determined, the stage is set for the introduction of a proper wage incentive system.

All payment systems are based on two principles:

a. Paying for time work.

b. Paying for output and quality.

Under the time principle, good and poor workers may receive the same remuneration and there is a lack of incentive toward increased production. Experience has taught that paying for time work in the paper box industry is uneconomical and undesirable.

Under the output principle, the remuneration is in proportion to production. The piece-rate system is the best known method coming under this class. It has often failed due to the practice of many employers to cut the rates when the employees earn above a certain level of wages. This cutting of piece rates causes "soldiering" and has given the piece-work system a bad name among the employees. It should also be stated that this system emphasizes quantity rather than quality, and that the workers keenly feel the insecurity of their jobs and their earnings, unless allowances are made in case of interruptions of operation over which the employees have no control. Finally, piece rates are usually set arbitrarily or based on past performances without making adjustments for changed operating conditions, with the result that some rates are too high and others too low. This inequality in rates causes stifling in production and general discontentment.

Serious Objections Met

These serious objections are met by the gain-sharing wage plan, which combines the advantages of the day-rate and piece-rate systems without possessing their disadvantages. A basic or minimum wage is guaranteed each worker for each hour that she is at work. In other words, each person in the factory is a salaried employee. The basic wage depends upon the skill required, local conditions, etc. In order to make it possible for ambitious operators to work their way up quickly in the ranks and to secure recognition and promotion (higher basic wage classification), premium is provided based on perfect work. Where efficiency is increased to a certain point, *the hourly basic wage is automatically raised.*

OPERATIONS ON GAIN-SHARING

UNLOADING MATERIAL
LINING BOARD
STOCK ROOM
CUTTING DEPARTMENT
- Scoring
- Shearing (Paper Cutting)
- Slitting
- Corner Cutting
- Slotting
- Die Cutting

BALING SCRAP
PRINTING DEPARTMENT
- Hand Printing
- Auto Printing
- Embossing
- Gold-Leafing
- Bronzing
- Die Cutting

MACHINE DEPARTMENT
- Bending
- Staying
- Thumbholing
- Stitching
- Stapling
- Quad Staying
- Ending
- Stripping (Covering)
- Topping
- Wrapping
- Fly-Leafing
- Lacing
- Bottoming
- Necking
- Doming

MACHINE ADJUSTERS
FOREMEN, ETC.

HAND WORK DEPARTMENT
- Making Complete Box
- Making Odd Shapes
- Labeling
- Gluing
- Drop-Front Boxes
- Hinging
- Stripping
- Beading or Trimming
- Tying Bows
- Putting on Ribbons
- Lacing
- Pony Strippers
- Cloth-Lined Boxes
- Silk-Covered Boxes

SHIPPING DEPARTMENT
- Closing
- Wrapping and Tying
- Making Crates
- Packing
- Trucking—Shipping

FIG. IV

A standard time unit based on time studies is established for performing a certain perfect operation. If the operator performs the work in less time, a gross saving results which is shared with the company in equal parts. This system is best understood by referring to Fig. II, which shows three sample calculations pertaining to the stripping operation given in Fig. I. The production standard as determined from time studies, is 0.5 hour per 100 boxes. The basic rate is 25 cents per hour or $2 per day for an 8-hour day.

The following tabulation gives the results of the calculation:

Production Per Day	Earnings Per Day	Unit Direct Labor Cost
1600	$2.00	12.5 cents
2400	2.50	10.5 cents
3200	3.00	9.5 cents

It is readily seen that with increase in production, the earnings increase and the unit cost decreases. Fig. II illustrates these char-

acteristics and also shows graphically a comparison with earnings and costs under the piece-rate system. Where a department has been working under a time-paying system, the "straight" gain-sharing plan works out very satisfactorily. Where a change from a piece-rate to the gain-sharing system is contemplated, it is necessary to provide in addition to the premium earned a higher wage classification or more rapid production. In other words, highly efficient operators are given an opportunity to earn more money under the differential gain-sharing plan than under the piece-rate system on a given high production. This procedure is justified on the ground that this high production decreases the burden or overhead, giving the operator a share of this gain. On the other hand, a poor operator is not entitled to the higher basic wage as the burden with respect to her operation is relatively high.

Comparison of Earning and Costs

A comparison of earnings and unit costs under the differential gain-sharing and piece-rate systems is illustrated in Fig. III. By proper selection of the differential basic wages, the zigzag cost curve can be given any desired characteristics with respect to the piece-rate cost line. It is readily seen that the differential gain-sharing wage plan offers a strong incentive to the operator to reach the higher wage classification. Increased production is stimulated, costs are kept within bounds and high wages are earned. If the general trend of wage changes, adjustments in the basic wages can be readily made, the standard time units remaining undisturbed as long as the operating conditions are the same.

The application of the gain-sharing wage plan in the paper box industry has passed the experimental stage. Fig. IV gives an outline of operations formerly on piece rate or time rates and now successfully working under the gain-sharing wage plan. Many of the operations must be metered by standards other than those at present in use in your industry. It has been found that nearly as large a saving can be made in giving the indirect workers an incentive as can be made with the direct labor. On many operations it is an advantage to have a separate time rate for setting up. This overcomes the difficulty so often experienced with piece rates where, if the rate is set for short jobs, the operator "runs away" with the same rate on a long job. In the operation of scoring, for example, this set-up or make-ready time is a very important feature. Machine adjusters, foremen, etc., are paid their premium on the increase in efficiency of the workers under their direct control. This efficiency is gauged by the per cent premium earned, which is a true index of the relative standing of the operators. It is necessary, of course, that the management be animated by a sincere and sympathetic intention in the administration of this wage incentive plan.

Giving Workers a Voice

Where the plant is large enough the new spirit in management may manifest itself not only in providing proper wages, but also in giving workers a voice in the determination of working conditions, hours of labor, safety, etc. We witness the introduction of mutual benefit associations, employees' representation plans, works councils and works committees. All these attempts to establish a true form of industrial democracy will help to live down generations of distrust and remove the source of discontentment, indifference and hostility.

The Will to Do

It is difficult to visualize the magnitude of the latent powers which some day will be released in millions of workers when they understand the significance of developing "the will to do." We may not see that day, but the game is worth the candle. In our attempts to bring about better relations between labor and capital, let us follow a firm but kind labor policy based on fairness, the square deal and the golden rule. Such a policy will bring back what industry has lost during the regime of mass production; the pride in workmanship, the joy of working and the desire to serve for the common good.

Industrial Education

By B. T. McBain, Third Vice-President Superintendents' Association, American Pulp & Paper Industry.

During the winter months every employee of every industrial plant should take unto himself a task to better his understanding of his work by taking advantage of the courses offered by the various Correspondence Schools or those of the Extension Divisions of the various Universities, if their own employers do not see the writing on the wall, and offer these employees the chance to gain higher education at their expense as the Nekoosa-Edwards Paper Company did in the winter of 1922-23 and is again planning to do for the winter of 1923-24.

Last year 131 workers of the Nekoosa and Port Edwards Pulp and Paper Mills took up the courses offered by that company and this year these same workers are to be offered more advanced work, while it is predicted that about that same number will register for the beginners' work, duplication of the work done by the pioneers of the Industrial Education classes of last winter.

During the present season the mills of the company were increased nearly 33⅓ per cent and nearly all the positions of any note were filled from the ranks of those taking the courses of the Wisconsin University Extension Division through the night classes, and aided by Educators of Note supplied by the Industrial Education Committee appointed by the Directors of the Company to put the idea across.

There were nearly 150 American pulp and paper mill companies who subscribed to the Educational Fund of the American Pulp & Paper Industry, a total of over $30,000 and a great number of Canadian employers who did their part to make the joint work of the Educational Committees and American Associations the great success that it has been voted by all who have taken the time to investigate.

Any industry is always in search of trained workers and it is as important that these trained workers should have technical knowledge as the practical experience. This point is being accepted more generally in the pulp and paper industry as time goes on and the publications of the Pulp and Paper Industry's Educational Committee are finding more favor from day to day as their texts become known to the employers of the industry.

There are three books already off the press and obtainable through the committee's secretary, E. S. Kellogg, Canadian Pacific Building, New York, and the fourth and fifth volumes will soon be available.

These books have been segregated into courses in pamphlet form and are available in either shape at little expense considering their value to the industry when properly applied.

Industrial education is a phrase coined by the Nekoosa-Edwards Paper Company Board of Education as better explaining the work they are carrying on and it is to be hoped that more employers in the industry will learn the value of such efforts among their workers.

Any one wishing to know more of the plan followed by the company referred to may do so by addressing F. H. Rosebush, Director of Industrial Relations, Port Edwards, Wisconsin.

Contest Rates on News Print

[From our regular correspondent.]

Washington, D. C., October 17, 1923.—The Washington Publishers Association consisting of the following: Washington Post, Washington Times, The Washington Herald and the Washington Daily News have been permitted to intervene by the Interstate Commerce Commission, in docket No. 16259 which is the case of the Evening Star Newspaper Company against the Canadian Pacific Railroad, et al. The case involves rates on all news print paper from Canada to Washington.

PROPER USE OF COST DATA BY TRADE ASSOCIATIONS*

By R. S. Kellogg, Sec. News Print Service Bureau, New York

What is a Trade Association?

The A. T. A. E. says it is:

"An organization of producers or distributors of a commodity or service upon a mutual basis for the purpose of promoting the business of their branch of industry and improving their service to the public through the compilation and distribution of information, the establishment of trade standards and the co-operative handling of problems common to the production or distribution of the commodity or service with which they are concerned."

There are various types of industrial services which are *not* trade associations.

Some of these do excellent and entirely legitimate work—others are of different character.

Outstanding Accomplishments

The outstanding accomplishments of American trade associations are in two fields:

1. The development of standards of commodities and practices.
2. The compilation of facts—statistics.

We get the benefit of trade standardization daily from the bed we sleep in—if we are not too tall—the paper we read and the breakfast we eat in the morning and our means of travel to our daily task—afoot or awheel—to the coffin we are buried in and the insurance policy left to our dependents. Human beings cannot live together without standardization.

Statistics are as necessary to the navigator on the sea of business as are compass, sextant and barometer to the mariner on the high seas.

Only upon a basis of facts is it possible for the public to be served in the manner it demands. Facts are sometimes disconcerting, but never so damaging as the gossip which circulates when facts are not available. Business done by daylight is permanently more successful than that done in darkness, and while the public may reap a temporary advantage from blind competition of either buyers or sellers, the public in the long run pays the bills for all economic losses.

"Big business" usually has adequate means of its own for securing necessary data. It is only through trade associations that the smaller operators are able to be informed and meet conditions that arise from day to day.

What Is Illegal for Competitors

It is illegal for competitors by agreement to:

Fix prices.
Limit output.
Divide territory.

But commerce and industry assert that they have the inherent right to collect and distribute through their trade organizations statistics as to volume of production, shipments, stocks, orders, costs, wage rates, market conditions as to their own and competing commodities, all impartially compiled by a trained association executive and supplied without coloring by him to all who have a legitimate interest in the matters dealt with.

Trade associations have opportunity for great service to their members and the public through the study of all items of cost and the setting-up of honest cost standards.

Unfortunately, there have been too many cases where so-called uniform cost systems introduced by so-called cost accountants have not been used for the honest determination of costs for the purpose of reducing costs and effecting economies in operation, but for the purpose of fixing or raising selling prices. Aside from the moral turpitude involved, such undertakings do not find favor with the Department of Justice or the United States Supreme Court.

Many business men, used to individual freedom, have failed utterly to realize the difference between what each may do for himself and what he may not do in agreement with his fellows.

What is legitimate in one case may be criminal conspiracy in the other.

Must Protect Their Associations

Trade association executives in every capacity—managers, secretaries, cost accountants, legal advisers or what not—are duty-bound to protect their organizations from foolish ventures of this sort.

The handling of cost data by trade associations should be on the same basis as other statistics:

No guesswork.
No advice as to selling prices or profit margins.
No agreements as to fixed charges.
No averaging or estimates to establish mythical "costs" which in reality conceal a profit.

Trade associations service in cost determination should be of as high-grade as can be obtained from well-known firms of public accountants and equally impartial. Such service is of great value to an industry in:

Exposing incorrect methods.
Revealing uneconomic processes.
Checking wastes.
Indicating opportunities for reducing costs.

Direct service of this sort to an industry is indirect but nevertheless tangible service to the public which buys the product of the industry.

Such service is most effective when operating costs are compared on a standard basis.

Right to Know Facts

Every business man has the right to know all the essential facts in connection with the production and distribution of his product but he has neither moral nor legal right through agreement with his competitor to endeavor to bring about an artificial condition beneficial to himself and hurtful to the public.

Function of the Cost Accountant

The cost accountant has a great function to perform and great opportunity for service in the ascertainment of the economic facts essential to sound business and industry. His national association is to be congratulated upon its leadership in such development.

*Delivered at meeting of National Association of Cost Accountants, Buffalo, N. Y., September 13, 1923.

For Perpetuating Forests in Lake States

Paper and pulp manufacturers are to meet with members of Congress from Wisconsin and Minnesota, at Wausau, Wis., on October 23 to discuss means for perpetuating the forests in the Lake States Section. Representatives of the states, tax commissioners and other state officials will also be present.

Superintendents to Meet in Dayton

[FROM OUR REGULAR CORRESPONDENT]

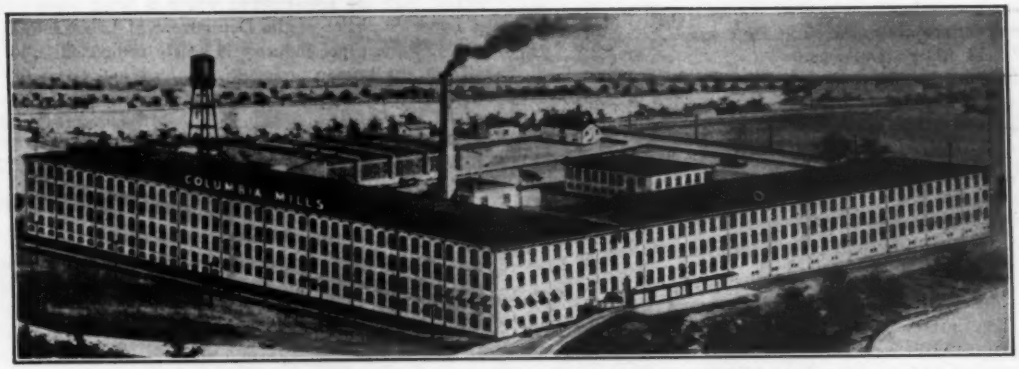
Chicago, October 15, 1923.—The executive committee of the Superintendents Association of the Paper and Pulp Industry at a meeting held at the Hotel Drake, October 9, selected Dayton, Ohio, as the place for holding their next annual convention, the dates being May 22, 23, and 24, 1924.

COTTON DRYER FELTS

"Mt. Vernon" Standard Weave
Medium—Standard—Extra Heavy
Widths 36" to 164"

"Richland" Triplex Weave
Widths 68" to 210"

Felts within above ranges made in lengths as required.



Columbia, S. C., Plant of Mt. Vernon—Woodberry Mills, Inc., Baltimore—where "Richland" Felts are made.
Orders must be placed sufficiently in advance to insure satisfactory delivery.

TURNER, HALSEY COMPANY
62 Leonard Street, New York
Sole Selling Agent for
MT. VERNON—WOODBERRY MILLS, Inc.

Modern Methods

in our mills constitute one of the reasons for Appleton efficient service and fine quality.

The latest and most improved machinery with skilled workmen and the best wool obtainable, guarantee Appleton superiority.

Let us show you how Appleton Felts and Jackets will serve you better and longer. Write

APPLETON WOOLEN MILLS
Appleton, Wisconsin

Appleton
Felts and Jackets

Joint Convention at Appleton

Superintendents, technical men and cost people of the American Pulp and Paper Industry will meet in Joint Session at Appleton, Wis., Friday and Saturday, October 26 and 27.

Arrangements have been completed with the Passenger Association of the Railroads for special convention rates from all points. The committee at Appleton has arranged for several surprises not shown on the program.

Kimberly-Clark Company at Kimberly will be hosts on Saturday, October 27, at a luncheon at their Kimberly mill and from 300 to 400 of the visitors are expected as their guests.

The Technical Association expects to register on Thursday and to hold committee meetings that afternoon and evening; but the other two associations will do this work on Friday morning.

The hotels in Appleton are ready for a record-breaking crowd. Any information desired can be secured from Hugh Corbett, secretary of Appleton Chamber of Commerce or from Vance P. Edwardes, chairman of the convention at Appleton.

Installing Electric Generator

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., October 16, 1923.—The Holyoke Water Power Company is now installing its 10,000 horsepower electric generator at its river plant. The company has found it necessary to raise the roof about 20 feet to house the big generator. The boiler house will be extended 40 feet over the river, resting on eight concrete piles which rest on bedrock, 15 feet below the bed of the river. The concrete base for the turbines and generators at the No. 2 overflow has been poured and set. The line connecting the company plant with the city plant is well under way and, when completed, the company can supply the city with 3,000 horsepower or over.

Wage Inquiry Nears End

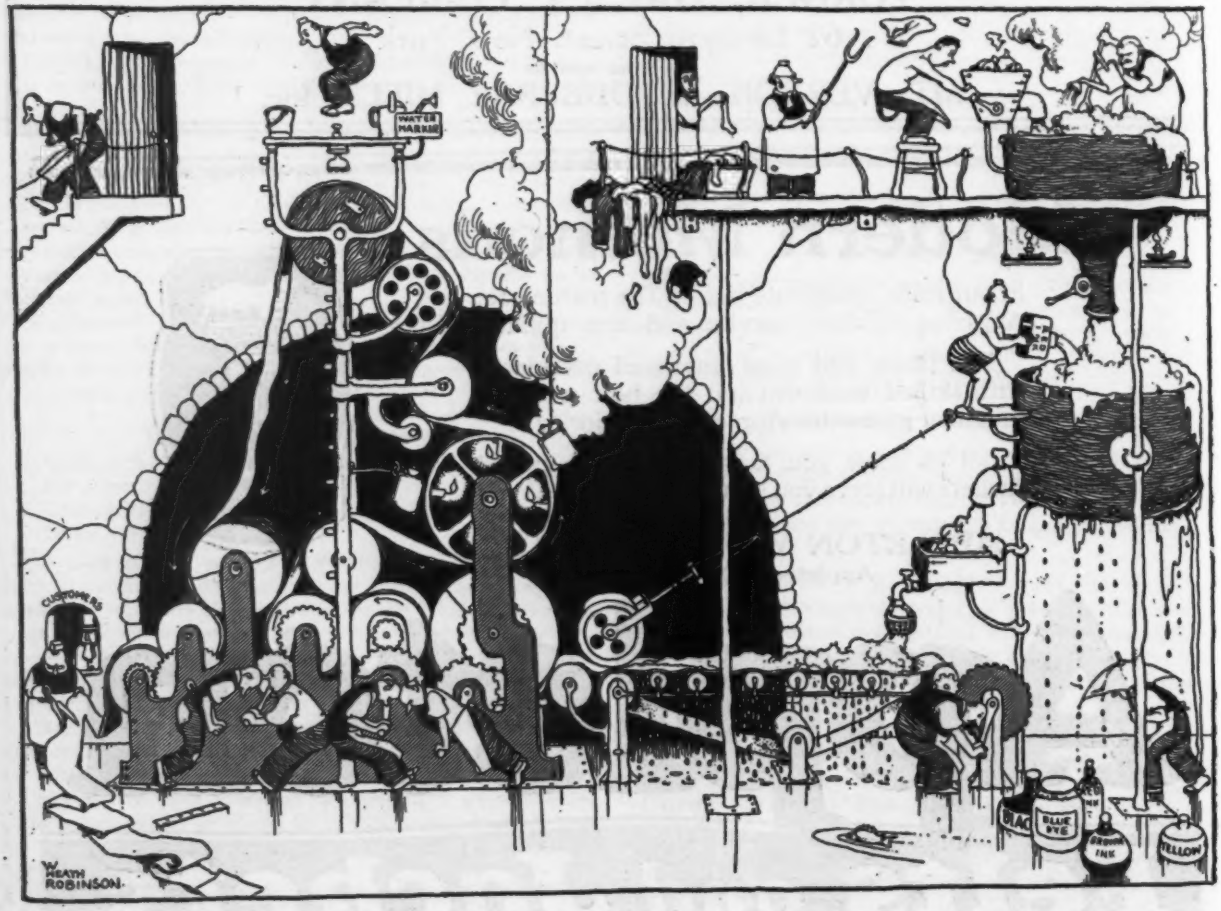
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 17, 1923.—The field work in connection with the investigation which is being made by the Bureau of Labor Statistics of the Department of Labor into the hours and wages of the paper industry is nearly completed, according to officials of the bureau.

While the investigation has been underway for some months, it is understood that it will be several months before the complete report is available.

The Latest Thing in Paper Making Machines

Thomas & Green, Limited, recently invited W. Heath Robinson to submit suggestions for improvements on the existing types of papermaking machines. The resulting ideas as shown in the sketch are extremely interesting and in many ways simplify present practice; but owing to the necessity for exact color-matching which has been for so many years a specialty of 288 Mill, the directors have decided very reluctantly that they must continue to rely upon the more orthodox methods of the leading papermaking authorities.—*The World's Paper Trade Review.*



THE LATEST THING IN PAPER MAKING MACHINES SUBMITTED FOR CONSIDERATION OF THOMAS & GREEN, LTD.

New York Office
280 Broadway

Dayton Office

Chicago Office
10 So. La Salle St.

Compare it
Tear it
Test it
and you will specify it

HOWARD BOND

WATERMARKED

"The Nation's Business Paper"

Made by

THE HOWARD PAPER CO. URBANA, OHIO

Howard Laid Bond
Howard Ledger
Howard Bond
Envelopes

KLEER-VEW
GLASSINE

and

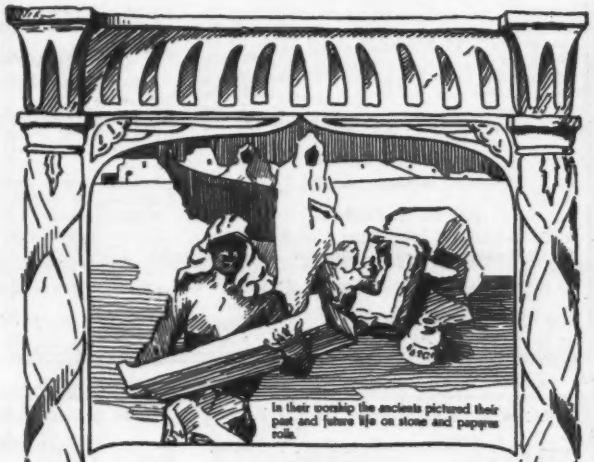
PURITY GREASEPROOF
Parchment Paper

Make Packages More Sightly

For Samples and Prices Write

Louis T. Stevenson, President
110 East Forty-second Street, New York

MOUNTAIN MILL PAPER CO., LEE, MASSACHUSETTS
ROLLSTONE PAPER CO., FITCHBURG, MASSACHUSETTS



Serve the Nations of the Earth today--

K. V. P. Genuine Vegetable Parchment
Pure Waxed Papers
Household Specialty Rolls
Bond and Ledger Papers

Kalamazoo Vegetable Parchment Co.
Kalamazoo, Mich.

J. ANDERSEN & CO.

21 EAST 40th STREET, NEW YORK CITY

Importers of Chemical Pulps

BLEACHED and UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden.
Kronstädter Papierstoff — Fabriks Actien — Gesellschaft
Mills at Tucianeky, Sv. Martin

C. L. LaBoiteaux, President S. M. Phelan, Jr., Vice-Pres. & Gen. Mgr.

The
REPUBLIC PAPER BOARD COMPANY

C. L. LABOITEAUX, PRESIDENT

Ingalls Building Cincinnati, Ohio

Set-Up Boxboards
Folding Boxboards
Container Liners

Write Us or Wire Your Inquiries at Our Expense.

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 13, 1923

SUMMARY

News print .....2,019 rolls, 308 bls.
Printing paper.....495 cs., 22 rolls, 21 bls.
Wall paper .....45 cs.
Cigarette paper .....78 cs.
Packing paper.....4,572 rolls, 979 bls.
Wrapping paper.....4,910 rolls, 232 bls., 62 cs.
Drawing paper .....50 cs.
Surface coated paper.....48 cs.
Colored paper .....36 cs.
Hangings .....433 rolls, 37 bls.
Tissue paper .....6 cs.
Decalcomania paper .....1 cs.
Photo paper .....1 cs.
Copy paper .....41 cs.
Litho. paper .....31 cs.
Filter paper .....107 bls.
Kraft paper.....384 pkgs., 135 rolls, 106 bls.
Blueprint paper .....28 rolls
Writing paper .....12 cs.
Miscellaneous paper.....45 cs., 148 rolls, 132 bls.

CIGARETTE PAPER

P. J. Schweitzer, Lapland, Antwerp, 78 cs.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Baltic, Liverpool, 14 bls.
A. C. Dodman, Jr., Inc., Caronia, Liverpool, 23 bls.
C. G. Keferstein, Ohio, Hamburg, 433 rolls.

WALL PAPER

W. H. S. Lloyd & Co., Lapland, Antwerp, 3 cs.
R. F. Downing & Co., Delagoa Maru, Yokohama, 42 cs.

COPY PAPER

R. F. Downing & Co., Delagoa Maru, Yokohama, 4 cs.
Japan Paper Company, Delagoa Maru, Yokohama, 37 cs.

LITHO. PAPER

B. C. Ritchie, Delagoa Maru, Canton, 31 cs.

FILTER PAPER

E. Fougera & Co., Majestic, Bordeaux, 107 bls.

COLORED PAPER

A. C. Dodman, Jr., Inc., Lapland, Antwerp, 10 cs.
C. W. Williams & Co., by same, 26 cs.

SURFACE COATED PAPER

Gevaert Company of America, Lapland, Antwerp, 44 cs.
P. C. Zuhlke, by same, 4 cs.

PRINTING PAPER

P. C. Zuhlke, Lapland, Antwerp, 10 cs.
J. L. N. Smythe & Co., Finland, Hamburg, 176 cs.
C. Steiner, Muenchen, Bremen, 30 cs.
C. Steiner, Vermonia, Hamburg, 21 bls.
Perkins, Goodwin & Co., N. Amsterdam, Rotterdam, 205 cs.
B. F. Drakenfeld & Co., Baltic, Liverpool, 3 cs.
Seaman Paper Company, Ohio, Hamburg, 22 rolls.
Chemical National Bank, by same, 20 rolls.
Import Paper Company, by same, 71 cs.

NEWS PRINT

Parsons & Whittemore, Pres. Fillmore, Bremen, 126 rolls.
Parsons & Whittemore, Pres. Roosevelt, Bremen, 658 rolls, 308 bls.
R. F. Hammond, Inc., Finland, Hamburg, 521 rolls.
H. Reeve Angel & Co., Inc., Pres. Roosevelt, Bremen, 178 rolls.
Hudson Trading Company, Ohio, Hamburg, 171 rolls.
Chemical National Bank, by same, 365 rolls.

KRAFT PAPER

Wilkinson Brothers & Co., Inc., Ohio, Hamburg, 384 pkgs., 26 bls., 60 rolls.
W. Hartmann & Co., Inc., by same, 75 rolls, 16 bls.
International Acceptance Bank, by same, 31 bls.
Wilkinson Brothers & Co., Inc., Finland, Hamburg, 15 bls.
M. O'Meara Company, by same, 18 bls.

WRAPPING PAPER

C. G. Keferstein, Canopic, Bremen, 62 cs.
C. K. MacAlpine & Co., A. Ballin, Hamburg, 2,712 rolls.
Chemical National Bank, Reliance, Hamburg, 2,184 rolls.
Arkell Safety Bag Company, Pres. Roosevelt, Bremen, 14 rolls.
J. P. Heffernan Paper Company, by same, 232 bls.

PACKING PAPER

Republic Bag & Paper Company, Ohio, Hamburg, 1,080 rolls.
Chemical National Bank, by same, 345 bls.
Steiner Paper Company, by same, 266 bls.
Bernard, Judae & Co., Veronica, Hamburg, 296 bls.
Republic Bag & Paper Company, N. Amsterdam, Rotterdam, 21 bls., 3,412 rolls.
Wilkinson Brothers & Co., Inc., by same, 80 rolls.
Birn & Wachenheim, by same, 51 bls.

DECALCOMANIA PAPER

Phoenix Shipping Company, Muenchen, Bremen, 1 cs.

DRAWING PAPER

B. Altman & Co., Berengaria, Liverpool, 1 cs.
Keuffel & Esser, Reliance, Hamburg, 49 cs.

BLUEPRINT PAPER

Keuffel & Esser, Reliance, Hamburg, 28 rolls.

WRITING PAPER

C. Steiner, Pres. Roosevelt, Bremen, 12 cs.

TISSUE PAPER

F. C. Strype, Caronia, Liverpool, 6 cs.

PHOTO PAPER

J. J. Gavin, Caronia, Liverpool, 1 cs.

PAPER

Japan Paper Company, Delagoa Maru, Yokohama, 21 cs.
A. Murphy & Co., Rochambeau, Havre, 4 cs.
C. H. Boulin, by same, 2 cs.
P. H. Petry & Co., Finland, Hamburg, 18 cs.
F. Barrett & Son, Ohio, Hamburg, 132 bls.
Irving Bank Columbia Trust Company, United States, Copenhagen, 113 rolls.
Bank of New York, by same, 35 rolls.

RAGS, BAGGING, ETC.

L. H. Abenheimer, Hector, Barcelona, 739 bls. rags.
L. H. Abenheimer, Vermonia, Hamburg, 145 bls. rags.
P. Berlowitz, N. Amsterdam, Rotterdam, 170 bls. rags.
International Acceptance Bank, Boston City, Bristol, 564 bls. rags.
E. J. Keller Company, Inc., United States, Copenhagen, 445 bls. rags.
E. J. Keller Company, Inc., Lapland, Antwerp, 180 bls. flax waste.
E. J. Keller Company, Inc., Zelland, Antwerp, 154 bls. flax waste.
Castle & Overton, Malgache, Leghorn, 111 bls. rags.
Castle & Overton, Mercier, Antwerp, 67 bls. rags.
Brown Brothers & Co., by same, 363 bls. rags.
Irving Bank Columbia Trust Company, by same, 375 bls. flax waste.
Equitable Trust Company, Lapland, Antwerp, 118 bls. thread waste.
New York Trust Company, Muenchen, Bremen, 44 bls. rags.
Guaranty Trust Company, Baltic, Liverpool, 52 bls. rags.
Katzenstein & Keene, Inc., R. Dollar, Genoa, 157 bls. bagging.
Katzenstein & Keene, Inc., London Commerce, London, 4 bls. rags.
S. Silberman & Co., Pres. Fillmore, Bremen, 200 bls. rags.
Guaranty Trust Company, Exeter City, Bristol, 226 bls. rags.
American Express Company, by same, 257 bls. rags.
M. O'Meara Company, Norfolk Range, Dundee, 20 bls. paper stock.
Furniss, Withy & Co., by same, 104 bls. paper stock.

OLD ROPE

Castle & Overton, United States, Copenhagen, 16 bls., 206 coils.
Brown Brothers & Co., Boston City, Bristol, 164 coils.
Brown Brothers & Co., Exeter City, Bristol, 447 coils.
Brown Brothers & Co., Marengo, Hull, 138 coils, 16 bls.
Brown Brothers & Co., N. Amsterdam, Rotterdam, 76 coils.
Salomon Brothers & Co., by same, 72 coils.
Ellerman Wilson Line, Marengo, Hull, 93 coils, 20 bls.
E. J. Keller Company, Inc., California, Glasgow, 104 bls. rope ends.

WOODFLOUR

The Hansa Company, Westport, Helsingors, 671 bags, 30,195 kilos.
Innes-Spieden & Co., Ohio, Hamburg, 1,166 bags.

CASEIN

T. M. Duche & Sons, Hesperides, Buenos Aires, 1,368 bags.

WOOD PULP

Perkins, Goodwin & Co., United States, Copenhagen, 300 bls. wood pulp.
M. Gottesman & Co., Inc., Finland, Antwerp, 2,271 bls. wood pulp.
Castle & Overton, N. Amsterdam, Rotterdam, 756 bls. wood pulp.
Castle & Overton, Muenchen, Bremen, 1,100 bls. wood pulp.
H. Hollesen, by same, 1,435 bls. wood pulp.
Bulkley, Dunton & Co., Pres. Roosevelt, Bremen, 1,375 bls., 275 tons wood pulp.
Pagel, Horton & Co., Inc., by same, 1,200 bls., 200 tons sulphite pulp.
Pagel, Horton & Co., Inc., Westport, Gefle, 3,420 bls., 516 tons sulphite pulp.
Bulkley, Dunton & Co., by same, 1,275 bls., 257 tons sulphite pulp.
Robert Dollar Company, M. Dollar, Port Alice, 11,730 bls. sulphite pulp.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 13, 1923

M. Gottesman & Co., Inc., Westport, Gefle, 46 rolls news print.
Pagel, Horton & Co., Inc., by same, 3,980 bls., 808 tons sulphite pulp.
Bulkley, Dunton & Co., by same, 1,250 bls., 253 tons sulphite pulp.
Wilson, Lyon & Co., Inc., by same, 3,078 bls., 595 tons sulphate pulp.
Lagerloef Trading Company, by same, 4,976 bls., 850 tons sulphate pulp; 2,669 bls., 532 tons mechanical pulp; 3,048 bls., 609 tons soda pulp.

NEW ORLEANS IMPORTS

WEEK ENDING OCTOBER 13, 1923

Castle & Overton, J. Kayser, Hamburg, 116 bls. rags.

(*Continued on page* 122)

POWER PLANT PIPING

A F&C Co

VALVES, FITTINGS, FLANGES, BENDS

Any Service *Any Pressure*

"AMERICAN" WELDED HEADERS PULP, AND PAPER MILL WORK

American Foundry and Construction Company

Engineers, Fabricators, Erectors

PITTSBURGH, PENNA.

F Diamond-F

PROTECTIVE PAPERS

Glassine Parchmoid

Vegetable Parchment Greaseproof

Diamond Fibre Receptacles of all kinds

Diamond State Fibre Company

BRIDGEPORT (near Philadelphia) PENNSYLVANIA

In Canada: Diamond State Fibre Company of Canada, Limited. 245 Carlaw Ave., Toronto, Ont.

THE WM. CABBLE EXCELSIOR WIRE MFG. CO.

Established 1840 Incorporated 1870-1896

Manufacturers of Superior Fourdrinier Wires Brass, Copper and Iron Wire Cloth of every Description. Best Quality of Wire Rope.

Write for Price List

74-90 Ainslie St. BROOKLYN, N. Y.

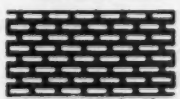
Perforated Metal Screens

For Pulp and Paper Mills

STEEL, COPPER, BRASS, BRONZE and other Alloys

.065 Inch Round

punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.



⅛ x ½ Inch Slots

CHARLES MUNDT & SONS

43-45 FAIRMONT AVE. JERSEY CITY, N. J.

The B Co. Inc.

QUALITY PULPS

HAFSLUND NORWAY

"HAFSLUND BEAR" Bleached Sulphite

F:HAGA

"FORSHAGA" Bleached Sulphite

A.B. MÖLNBACKA-TRYSIL KI SWEDEN

"KLARAFORS" Easy Bleaching Sulphite

The Borregaard Company

Incorporated

200 FIFTH AVENUE NEW YORK, N. Y.

West Virginia Pulp and Paper Company

Manufacturers of

Supercalendered and Machine

Finished Book and Lithographic Papers

Offset, Envelope and Music Paper, High Grade Coated Book and Label Papers

also

Bleached Spruce Sulphite and Soda Pulp

200 Fifth Avenue New York

732 Sherman Street Chicago

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, OCTOBER 17, 1923.

The market took a slightly stronger position during the past week with all grades showing an improved demand with prices firm at about the same level as they have been for the past month.

Dealers said that indications pointed toward an extremely successful winter in all varieties of paper. The difficulties that loomed up during the summer have, in the main, disappeared. An exception to this is the low water in the north that is holding back the mechanical pulp mills.

The opening of the New York branch of the Paper Industries Exchange on Tuesday caused considerable speculation in the local trade, but thus far it has had no influence upon market conditions.

Trading has been brisk since it opened on Tuesday, and those who are backing it declare that they are satisfied with the progress this baby among New York exchanges is making. Trading on the board was particularly fast during the first day—Tuesday—when anyone present, whether members or not, was permitted to bid and offer as a demonstration of the idea. The fact is that the exchange is going to be influenced by the outside market during the first months of its life rather than its having a bearing on the usual trading.

In the fine and writing paper fields everything went smoothly during the week with little change one way or the other. The direct mailing advertising campaigns are making trading a little brisker, and prices are very firm at their present level. The readjustment of the American Writing Paper Company had little or no influence on the market for paper although its stock was naturally affected by the receivership.

Wrapping and coarse papers also remained outwardly the same with a firmer and more secure feeling throughout the market and the feeling on the part of manufacturers and jobbers that they were gradually moving toward a stronger position.

News print still remains the best feature in the market with a good demand which has been stimulated by the end of the strike of the workers in the pressrooms. Prices remain very firm with an upward tendency evident in the open market. Rolls are moving a little faster than sheets and side runs, which are following close behind.

Book paper is also on the upgrade with the market very firm and buying gradually increasing. Dealers believe that before many more days are passed this will be the strongest thing in the market, even outstripping news print, although there are others who say that this view is too sanguine.

Board is gradually picking up after a slight slump about two weeks ago. Prices are showing less tendency to fluctuate, and manufacturers say that they are having less trouble in disposing of their maximum production. Meanwhile quotations are about the same as they were last week.

Mechanical Pulp

Water conditions are still very acute in many parts of the East, and particularly in those parts where the grinding mills for making mechanical pulp are located. Prices have remained at the same level during the past week, but they are very firm, and there is no evidence of any tendency toward reductions. It is predicted still that a few heavy rains would do more to ease up the situation than anything else, and as soon as these do come there may be a readjustment in prices.

Chemical Pulp

Although the demand for chemical pulp has improved it is not yet back to normal, and dealers still say that they would be glad to get a few more large orders. There has been an increase in the number of orders but not in the size of them, and this is what the pulp merchants want to see. There is every sign, however, that the market is in a healthy condition and a vast improvement is bound to come. Prices are the same, and they represent rock bottom.

Old Rope and Bagging

There has been virtually no change in old rope and bagging during the week with prices just about the same and the better grades of bagging having somewhat the advantage over the others.

Rags

Rags in the lower grades showed some improvement in demand with the roofing mills coming in with a good many more orders. Meanwhile the higher grades continued to hold the advantage they gained last week, and the tone of the whole market is much better.

Waste Paper

Certain of the lower grades of waste paper also showed improvement during the week with shavings and the other high grades still in good condition. Prices have varied but little. Mixed papers went down slightly, but container board showed a good increase in price.

Experimenting with Glue

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 17, 1923.—The Bureau of Standards is carrying out some experiments dealing with the use of glue in coating paper. During the past month nine runs have been made on the experimental coating machine, using two makes of bone glue for eight of the runs and a French casein glue for one. The clay used for all runs was Lee Moor, a good grade of English coating clay. The results indicate that the water resistance of glue-bound coating containing chrome alum compares favorably with that of casein-bound paper containing no formaldehyde. It is beileved that the degree of water proofness will prove sufficient for most of the papers used for halftone printing. Difficulties have been experienced in obtaining a uniform coating, because of variation of the fluidity of the coating mixture and mechanical defects in the machine, so that additional work will be necessary before paper suitable for printing tests can be produced.

W. F. Whiting Willing to Be Delegate

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., October 16, 1923.—William F. Whiting of the Whiting Paper Company announced Sunday his willingness to serve as a delegate to the Republican National Convention. Mr. Whiting was a delegate at the last Republican Convention and worked untiringly to secure the nomination of Calvin Coolidge for President. In this he was unsuccessful but his efforts, assisted by George A. Galliver(then President of the American Writing Paper Company and Frank Stearns of Boston, resulted in creating such a condition that Coolidge's nomination for Vice President was possible.

Another Holyoke Shut-Down

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., October 16, 1923.—The prolonged drouth has had an unfavorable effect upon Holyoke paper manufacturing, the head gates to the canals being shut Friday for the eleventh time this season. The production of paper is considerably curtailed and additional expense necessitated to start up the machines again so that the total loss figures quite a sum.

Put in Another Cylinder Machine

JAITE, Ohio, October 16, 1923.—The Jaite Company are adding another cylinder machine to their plant. This will eventually replace one of the older machines they now have in operation. Charles Jaite has been in Chicago and Cleveland during the past week arranging for changes, which will increase his production considerably.

Market Quotations

Paper Stock Securities

New York Stock Exchange closing quotations October 16, 1923.

	BID	ASKED
American Writing Paper Company, pref	3	4
International Paper Company, com	30½	32
International Paper Company, pref. stamped	63⅜	64½
Union Bag & Paper Corporation	59½	61½

Paper

F. o. b. Mill		
Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@30.00
Superfine	14.00	@30.00
Tub Sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—f. o. b. Mill—		
Rolls, contract	3.75	@ 4.00
Rolls, transit	4.00	@ 4.25
Sheets	4.25	@ 4.50
Side runs	3.50	@ 4.15
Book, Cased—f. o. b. Mill—		
S. & S. C.	7.25	@ 9.00
M. F.	7.00	@ 8.75
Coated and Enamel	9.00	@14.00
Lithograph	9.00	@14.00
Tissues—f. o. b. Mill—		
White No. 1	.80	@ .90
White No. 2	.85	@ .95
Colored	1.15	@ 2.00
Anti-Tarnish	1.50	@ 2.00
Kraft	.95	@ 1.15
Manila	.78	@ .85
Kraft—f. o. b. Mill—		
No. 1 Domestic	6.50	@ 7.50
No. 2 Domestic	6.00	@ 6.50
Imported	5.75	@ 6.25
Screenings	3.25	@ 3.50
Manila—		
No. 1 Jute	8.50	@ 9.00
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.50
No. 2 Wood	4.00	@ 4.50
Butchers	4.25	@ 4.75
Fibre Papers—		
No. 1 Fibre	6.00	@ 6.25
No. 2 Fibre	5.25	@ 5.50
Common Bogus	3.50	@ —
Card Middles	4.00	@ 5.00
Boards—per ton—		
News	55.00	@60.00
Straw	61.00	@63.00
Chip	50.00	@55.00
Binders' Boards	75.00	@80.00
Sgl. Mla. Lt. Chip	74.00	@80.00
Wood Pulp	70.00	@75.00
Container	70.00	@80.00
Sulphate Screenings—		
Coarse	.80	@ .90
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	15.00	@16.00
Bleached, basis 30 lbs.	17.00	@18.00
Papermakers' Felts per ton—		
Dry	75.00	@85.00
Saturated	65.00	@75.00
Sheathing Paper, per ton—		
Rosin Sized (red and gray, 30 lbs. per 500 sq. ft.)	55.00	@65.00

Mechanical Pulp

(Ex-Dock)		
No. 1 Imported	45.00	@53.00
(F. o. b. Mill)		
No. 1 Domestic	44.00	@50.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)		
Sulphite (Imported)—		
Bleached	4.50	@ 5.00
Easy Bleaching	3.50	@ 3.75
No. 1 strong unbleached	3.30	@ 3.50
No. 2 Strong unbleached	2.85	@ 3.10
No. 1 Kraft	3.25	@ 3.40
Sulphate—		
Bleached	4.00	@ 4.15
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	4.30	@ 5.00
Mixed Strings	1.00	@ 1.10
Easy Bleaching Sulphite	3.25	@ 3.50
News Sulphite	3.00	@ 3.25
Mitscherlich	3.20	@ 3.30
Kraft (Domestic)	3.10	@ 3.30
Soda Bleached	4.25	@ 4.35

Domestic Rags

Prices to Mill, f. o. b. N. Y.	New	
Shirt Cuttings—		
New White, No. 1	12.25	@13.00
New White, No. 2	6.00	@ 6.50
Silesias, No. 1	7.00	@ 7.50
New Unbleached	10.50	@11.00
Washables	4.75	@ 5.00
Fancy	5.50	@ 6.00
Blue Overall	7.50	@ 8.00
New Blue	5.00	@ 5.55
New Black Soft	4.75	@ 5.25
New Light Seconds	2.75	@ 3.00
O. D. Khaki Cuttings	4.25	@ 4.50
Men's Corduroy	3.50	@ 3.75
New Canvas	6.50	@ 7.00
New Black Mixed	2.60	@ 2.80
White, No. 1—		
Repacked	5.75	@ 6.25
Miscellaneous	5.00	@ 5.25
White, No. 2—		
Repacked	3.80	@ 4.12
Miscellaneous	3.25	@ 3.50
St. Soiled, White	2.50	@ 2.75
Thirds and Blues—		
Repacked	2.60	@ 2.87
Miscellaneous	2.25	@ 2.50
Black Stockings	2.75	@ 3.00
Roofing Rags—		
Cloth Strippings	1.30	@ 1.40
No. 1	1.30	@ 1.40
No. 2	1.20	@ 1.30
No. 3	.85	@ .95
No. 4	.85	@ .95
No. 5A	1.00	@ 1.10

Foreign Rags

New Light Silesias	6.00	@ 7.00
Light Flannelettes	8.00	@
Unbl'chd Cottons	7.50	@ 8.50
New White Cuttings	10.00	@11.00
New Light Oxfords	6.00	@ 7.25
New Light Prints	4.50	@ 6.00
New Mixed Cuttings	2.00	@ 2.50
New Dark Cuttings	1.90	@ 2.10
No. 1 White Linens	10.00	nominal
No. 2 White Linens	6.50	nominal
No. 3 White Linens	5.00	nominal
No. 4 White Linens	3.50	nominal
Old Extra Light Prints	2.50	nominal
Ord. Light Prints	2.25	nominal
Med. Light Prints	2.00	nominal
Dutch Blue Cotton	2.50	nominal
German Blue Cottons	2.00	nominal
Ger. Blue Linens	3.00	@ 3.25
Checks and Blues	1.25	@ 1.50
Dark Cottons	1.30	@ 1.35
Shoppery	1.00	@ 1.05
French Blues	2.25	nominal

Bagging

Prices to Mill F. o. b. N. Y.		
Gunny No. 1—		
Foreign	1.20	@ 1.30
Domestic	1.30	@ 1.35
Wool, Tares, light	1.30	@ 1.40
Wool, Tares, heavy	1.30	@ 1.40
Bright Bagging	1.05	@ 1.20
Sound Bagging	.90	@ 1.00
Manila Rope—		
Foreign	4.75	@ 5.25
Domestic	5.00	@ 5.50
New Bu. Cut	2.15	@ 2.25
Hessian Jute Threads—		
Foreign	2.00	@ 2.25
Domestic	2.00	@ 2.10

Twines

Cotton—(F. o. b. Mill)—		
No. 1	.32	@ .36
No. 2	.29	@ .31
No. 3	.34	@ .36
India, No. 6 basis—		
Light	.17	@ .18
Dark	.16	@ .17
B. C., 18 basis	.41	@ .42
A. B. Italian, 18 Basis	.51	@ .61
Finished Jute—		
Dark, 18 basis	.29	@ .30
Light, 18 basis	.26	@ .27
Jute Wrapping, 3-6 Ply—		
No. 1	.20	@ .21
No. 2	.18	@ .20
Tube Rope—		
4-ply and larger	.15	@ .17
Fine Tube Yarn—		
5-ply and larger	.19	@ .21
4-ply	.20	@ .22
3-ply	.20	@ .22
Unfinished India—		
Basis	.16	@ .17
Paper Makers' Twine Balls	.09	@ .11
Box Twine, 2-3 ply	.14	@ .15
Jute Rope	.15	@ .16
Amer. Hemp, 6	.30	@ .32
Sisal Hay Rope—		
No. 1 Basis	.14	@ .16
No. 2 Basis	.10	@ .12
Sisal Lath Yarn—		
No. 1	.14	@ .15
No. 2	.11	@ .13
Manila Rope	.18	@ .19

Old Waste Papers

(F. o. b. New York.)

Shavings—		
Hard, White, No. 1	4.20	@ 4.35
Hard, White, No. 2	3.40	@ 3.50
Soft, White, No. 1	3.30	@ 4.45
Flat Stock—		
Stitchless	1.95	@ 2.05
Over Issue Mag.	1.95	@ 2.05
Solid Flat Book	1.75	@ 2.00
Crumbled No. 1	1.50	@ 1.60
Solid Book Ledger	2.10	@ 2.50
Ledger Stock	1.90	@ 2.00
New B. B. Chips	.85	@ .95
Manilas—		
New Env. Cut	2.70	@ 2.80
New Cut No. 1	2.00	@ 2.25
Extra No. 1 old	1.55	@ 1.65
Print	1.20	@ 1.30
Container Board	1.05	@ 1.10
Bogus Wrapper	1.00	@ 1.10
Old Krafts, machine compressed Bales	2.20	@ 2.30
News—		
No. 1 White News	2.15	@ 2.30
Strictly overissue	1.25	@ 1.35
Strictly Folded	1.00	@ 1.10
No. 1 Mixed Paper	.75	@ .85
Common Paper	.60	@ .70

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

F. o. b. Mill		
All Rag Bond	35	@ 40
No. 1 Rag Bond	20	@ 25
No. 2 Rag Bond	15	@ 25
Water Marked Sulphite	9½	@ 13
Sulphite Bond	8	@ 12
Sulphite Ledger	9½	@ 14
Superfine Writing	18	@ 24
No. 1 Fine Writing	14	@ 18
No. 2 Fine Writing	12	@ 14
No. 3 Fine Writing	9	@ 12
No. 1 M. F. Book	6	@ 7½
No. 1 S. & S. C. Book	6½	@ 7¾
Coated Book	8½	@ 10¼
Coated Label	8½	@ 10
News—Rolls, mill	3¾	@ 4½
News—Sheets, mill	4½	@ 4¾
No. 1 Manila	4¾	@ 6
No. 1 Fibre	5¼	@ 5¾
No. 2 Manila	4¾	@ 5
Butchers' Manila	4	@ 4½
No. 1 Kraft	7	@ 7½
No. 2 Kraft	6½	@ 7
Wood Tag Boards	4¾	@ 6
Screenings	5	@ 5½
Boards, per ton—		
Plain Chip	50.00	@55.00
Solid News	54.00	@56.50
Manila Lined Chip	67.00	@70.00
Container Lined—		
85 Test	70.00	@75.00
100 Test	75.00	@80.00

Old Papers

F. o. b. Chicago

Shavings—		
No. 1 Hard White	4.00	@ 4.15
No. 1 Soft Shav.	3.50	@ 3.65
No. 1 Mixed	1.70	@ 1.85
No. 2 Mixed	1.50	@ 1.60
White Envel. Cuttings	4.00	@ 4.15
Ledgers and Writings	2.20	@ 2.40
Solid Books	2.05	@ 2.15
No. 1 Books, Light	1.75	@ 1.85
Blanks	2.40	@ 2.50
Ex. No. 1 Manila	2.40	@ 2.50
Manila Envelope Cuttings	2.60	@ 2.75
No. 1 Manilas	1.65	@ 1.75
Folded News (over issue)	1.25	@ 1.35
Old Newspaper	1.25	@ 1.35
Mixed Papers	1.10	@ 1.15
Straw Clippings	1.10	@ 1.15
Binders' Clippings	1.10	@ 1.15
Kraft	2.40	@ 2.50
New Kraft Cuts	2.50	@ 2.60
Roofing Stock, f. o. b. Chicago, Net Cash—		
No. 1	32.00	@ —
No. 2	30.00	@ —
No. 3	28.00	@ —
No. 4	28.00	@ —

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.10	@ .60
Ledgers	.15	@ .40
Writings—		
Superfine	.15	@ .20
Extra fine	.12	@ .22
Fine	.20	@ .30
Fine, No. 2	.20	@ .25
Fine, No. 3	.15	@ .20
Book, M. F.	.06	@ .11
Book, S. S. & C.	.08	@ .15
Book, Coated	.08	@ .15
Coated Lithograph	.10	@ .15
Label	.08	@ .15
News	.05	@ .07
No. 1 Jute Manila	.12	@ .13
Manila Sul., No. 1	.08	@ .10
Manila No. 2	.07½	@ .08
No. 2 Kraft	—	@ .10
No. 1 Kraft	—	@ .11
Common Bogus	.02½	@ .03
Straw Board	75.00	@85.00
News Board	65.00	@70.00
Chip Board	62.50	@67.00
Wood Pulp Board	1.25	@ 1.50
(Carload Lots)		
Binder Boards—		
Per ton	75.00	@80.00
Carload lots	75.00	@80.00
Tarred Felts—		
Regular	48.00	@50.00
Slaters	54.00	@56.00
Best Tarred, 1-ply (per roll)	1.35	@ 1.50
Best Tarred, 2-ply (per roll)	1.00	@ 1.15
Best Tarred, 3-ply	1.50	@ 1.65

Bagging

F. o. b. Phila.

Gunny No. 1—		
Foreign	1.25	@ —
Domestic	1.20	@ 1.25
Manila Rope	5.00	@ 6.00
Sisal Rope	.75	@ .80
Mixed Rope	.75	@ .80
Scrap Burlaps	1.00	@ 1.25
Wool Tares, heavy	2.50	@ 2.75
Mixed Strings	.75	@ .80
No. 1, New Lt. Burlap	1.75	@ 2.00
New Burlap Cuttings	1.75	@ 2.10

Old Papers

F. o. b. Phila.

Shavings—		
No. 1, Hard White	4.25	@ 4.40
No. 2, Hard White	3.50	@ 3.75
No. 1 Soft White	3.50	@ 3.75
No. 2 Soft White	2.15	@ 2.25

(*Continued on page 124*)

Imports and Exports of Paper and Paper Stock

(*Continued from page* 118)

CHARLESTON IMPORTS

WEEK ENDING OCTOBER 13, 1923

E. J. Keller Company, Inc., Magmneric, Bremen, 117 bls. bagging.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 13, 1923

Katzenstein & Keene, Inc., N. Range, Leith, 44 bls. rags.

New York Trust Company, Malgache, Leghorn, 478 bls. rags.

Katzenstein & Keene, Inc., Allegheny, Glasgow, 40 bls. rags.

E. J. Keller Company, Inc., Scythian, Antwerp, 411 bls. rags.

E. J. Keller Company, Inc., Editor, Dunkirk, 48 bls. rags.

Castle & Overton, Appomattox, England, 263 bls. waste paper.

Castle & Overton, Manchester Port, England, 281 bls. waste paper.

Castle & Overton, Emden, Germany, 155 bls. rags.

Castle & Overton, Sarcoxie, France, 71 bls. rags.

Castle & Overton, ———, Germany, 950 bls. wood pulp.

Robert Dollar Company, M. Dollar, Port Alice, 625 bls. wood pulp screenings.

J. W. Hampton, Jr., & Co., Boston City, Bristol, 163 tons, 6 cwt. china clay.

BOSTON IMPORTS

WEEK ENDING OCTOBER 13, 1923

Nilsen, Lyon & Co., Inc., Westport, Kotka, 439 bls., 87 tons wood pulp.

Pagel, Horton & Co., Inc., Westport, Gefle, 1,500 bls., 304 tons sulphite pulp.

R. F. Hammond, Inc., Kolamaren, Gothenburg, 500 bls., 100 tons wood pulp.

M. Gottesman & Co., Inc., Monticello, Hamburg, 562 bls. wood pulp.

E. J. Keller Company, Inc., Monticello, Hamburg, 77 bls. rags.

GOVERNMENT PAPER AWARDS AND BIDS

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 17, 1923.—The Government Printing Office received the following bids, for 240,500 pounds white machine finish printing paper, No. 1; 140,000 lbs.—24 x 32—28; 100,500 pounds, 38 x 48—67 pounds.

Bryant Paper Company, $.0758 per pound; Allied Paper Mills, $.07295; International Paper Company, $.07475; The Old Dominion Paper Company, $.07699; The Whitaker Paper Company, $.0911; The Old Dominion Paper Company, $.07854 and $.07949; R. P. Andrews Paper Company, $.0747; Dobler and Mudge, $.08; Maurice O'Meara Company, $.08; Kalamazoo Paper Company, $.0745; The Champion Coated Paper Company, $.0735; Dill and Collins Company, $.07545; Reese & Reese, $.0769; Osborn Paper Company, $.0835 and $.0865; Samuel S. Alcorn, $.08.

Bids on 4,000 lbs. back-lining paper for Case-making machines, basis 24 x 36—90 in 24-inch rolls: R. P. Andrews Paper Company, $.041 per lb.; Dobler and Mudge, $.04; Mathers-Lamm Paper Company, $.0433; The Old Dominion Paper Company, $.0449; The Whitaker Paper Company, $.0399; Paper Manufacturing Company, Inc., $.0475; The Broderick Company, $.042; Reese and Reese $.035; Barton, Duer and Koch Paper Company, $.0399; The Holliston Mills, Inc., $.0475; T. A. Cantwell & Co., $.045; Coy-Disbrow & Co., $.0346.

On 9,600 pounds of Gobelin blue rough cover paper, sample B, 20 x 25—48: The Broderick Paper Company, $.1038 per pound; The Whitaker Paper Company, $.1089; Reese and Reese, $.1044; Dobler and Mudge, $.105; Barton, Duer and Koch Paper Company, $.1065; Mathers-Lamm Paper Company, $.105; R. P. Andrews Paper Company, $.13; F. T. Parsons Paper Company, $.1074; Knowlton Brothers, $.10375; Osborn Paper Company, $.135 delivered; and $.1275 f. o. b. Mill; Old Dominion Paper Company, $.1049; Graham Paper Company, $.11; Carter, Rice & Company Corporation, $.11.

On 18 rolls blue tint tracing cloth, 36 inches wide, 24 yards to the roll: Buffalo Blue Print Company, $14.25 and $16.30; The Frederick Post Company, $14.61 f. o. b. Washington less 5 per cent; Eugene Dietzgen Company, Inc., $12.78; George F. Muth & Company, $22.28, $18.81 and $15.98; J. H. Weil & Company, $14.29 and $12.80; Williams Brown and Earle, Inc., $14.00; F. Weber Company, $16.30 and $19.30; New York Blue Print Paper Company, $16.30 f. o. b. Washington; and $19.30; The C. F. Pease Company, $15.98 and $18.90; Keuffel and Esser Company, $13.85, $16.30 and $19.61; Technical Supply Company, $14.40 f. o. b. Washington, less 5 per cent; R. P. Andrews Paper Company, $16.30; American Drafting Paper Company, $13.35.

Bids for 60,000 pounds Melon bristol board, 22½ x 28½—100, 20-inch rolls: The Whitaker Paper Company, $.0583 per lb. f. o. b. Washington; Carter, Rice & Co. Corp., $.0575 delivered; R. P. Andrews Paper Company, $.057 delivered; Old Dominion Paper Company, $.0699 delivered; Dobler and Mudge, $.0580 f. o. b. Washington; Reese and Reese, $.05325, f. o. b. Washington; Whiting-Patterson Company, Inc., $.6025 f. o. b. Washington.

Also, on 9,800 pounds of White China Board, 22 x 28—196: R. P. Andrews Paper Company, $15.30 per ream; Old Dominion Paper Company, $15.99; The Whitaker Paper Company, $16.16; Carter, Rice & Company, $16.00 f. o. b. cars, Washington; F. T. Parsons Paper Company, $15.846; Barton, Duer and Koch Paper Company, $16.245; Broderick Paper Company, $16.57.

The Printing office has received the following bids for 40,000 pounds of high finish sulphite manila paper, basis 24 x 36—80 in 18-inch rolls of 300 lbs. each: (per lb.) Coy, Disbrow & Company, Inc., $.0619; T. A. Cantwell & Co., $.075 and $.0775; Barton, Duer and $.0665, f. o. b. Washington; Carter, Rice & Co., $.085; Garrett-Buchanan Company, $.06035; Trinity Bag and Paper Company, $.0610; Reese and Reese, $.0663 f. o. b. Washington; Republic Bag and Paper Company, $.0795; Old Dominion Paper Company, $.0799; R. P. Andrews Paper Company, $.07; Wilkinson Brothers & Company, $.0596 f. o. b. Washington; Samuel Alcorn, $.057.

And on 225 pounds facing stereo tissue paper, 19 x 24—4½: Sutphin Paper Company, Inc., $3.45 per ream, f. o. b. Washington; Mathers-Lamm Paper Company, $3.24; Whitaker Paper Company, $3.75; Dobler and Mudge, $3.40; Wilkinson Brothers & Co., $3.63; R. P. Andrews Paper Company, $3.25; Barton, Duer and Koch Paper Company, $3.10; T. A. Cantwell & Co., $2.95, $3.25 and $3.50; The Republic Bag and Paper Company, $3.00.

Dobler and Mudge have been awarded the contract by the Purchasing Officer of the Printing Office to furnish 9,050 pounds (50 reams) of various colors 22½ x 28½—181, index bristol board at 23 cents, bids for which were opened on September 24.

Bids will be received by the Government Printing Office on October 22 for 10,300 pounds (200 reams) of 30 x 40—51½, lithograph finish map paper. Bids will also be received on the same date by the Printing Office for 7,200 pounds (150 reams) of 20 x 25—48, rough Suede cover paper.

The Government Printing Office will receive bids on October 22, for 29,150 pounds, (600 reams) of various sized white ledger paper. The bureau will also receive bids on 30,150 pounds, (300 reams) of 20½ x 30½—100½ No. 60 heavy white ledger paper.

The Bureau of Supplies and Accounts, Navy Department, will receive bids on October 30 for 60,000 rolls of paper towels.

The Government Printing Office will receive bids on October 24, for 78,000 pounds (2,000 reams) of 24 x 38—39, No. 18, yellow sulphite writing paper. Bids will be received on the same date for 3,600 pounds (100 reams) 21 x 32—36, No. 20, blue sulphite writing.

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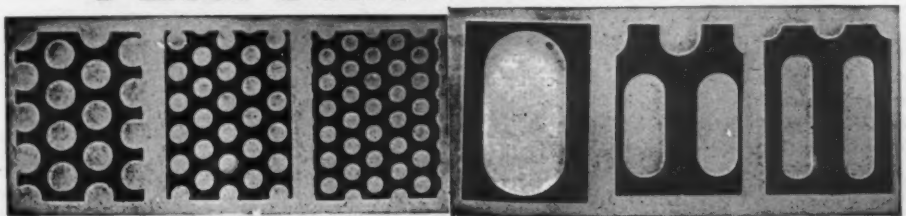

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Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, OCTOBER 17, 1923.

While prices remained the same during the past week the miscellaneous market still continued to improve. A much firmer undertone was apparent everywhere, and dealers said that they were satisfied with the way things seemed to be heading. One large dealer in all sorts of chemicals said that he wished that prices could improve as fast as the demand has been doing. He expressed himself as satisfied, however, if the reasonable prices brought in the added business they seemed to be doing. It is evident, however, that any change that comes in quotations will be upward rather than downward since paper mills are showing a greatly increased interest and the tendency of the pulp market is upward.

BLEACHING POWDER.—Trading in bleach still continued to improve during the week with the price just about the same. Although it is true that cooler weather has brought a great measure of relief in this market there are still a few distressed lots to be picked up in the open market at prices that shade a little below the normal market quotation. The price is gradually getting firmer all the time and is now quoted at from 1.50 to 1.60 cents a pound.

CAUSTIC SODA.—There is also a considerably increased interest in caustic, and trading was somewhat brisker this week with the present good price still continuing. Paper men are showing added interest and dealers report that they have a good business both on hand and in prospect, although there are enough vacancies on their order books to make room for any more that want to come into the market. The price is still at from 3.17 to 3.20 cents a pound on a flat basis.

CASEIN.—Casein has not shown as much change as some of the other commodities in the market although it is reported to be improving slowly. The price is still firm at 14.50 to 17 cents a pound, and dealers say that any change that comes will be toward higher prices.

CHINA CLAY.—The same prices maintain in china clay that went into force some months ago, and dealers report that their offerings are being more rapidly snapped up. Domestic is around $12 to $15 a ton and imported at $16 to $20 a ton.

CHLORINE.—Chlorine is also in increased demand, and paper mills seem to be needing more of this chemical if the number of orders coming into the market are any criterion. Dealers say that the only unfortunate part of the situation here is that the orders are mostly small, and it is possible to obtain large orders at slightly lower prices. It is quoted at 4.20 to 4.40 cents a pound in tanks.

ROSIN.—Naval stores are still continuing the improvement that set in several weeks back. The price on grades E, F and G is still at $5.95 to $6 in barrels.

SALTCAKE.—There is more call for saltcake in the local market, and this is tending to keep the price firm at $22 to $24 a ton.

SODA ASH.—Manufacturers of soda ash say that orders are coming in with satisfactory frequency, and although there is still room for some improvement they feel that the market is moving in the right direction. The price is firm at 1.45 to 1.50 cents on a flat basis.

STARCH.—Starch continued the same last week with a markedly better undertone, and the price firm at 3.42 to 3.70 cents a pound on the paper makers' variety.

SULPHATE OF ALUMINA.—This product is also improving with business a little better in the commercial grade than in the iron free, where competition is the keener. Commercial is quoted at 2.05 to 2.25 cents a pound and iron free at 1.25 to 1.35 cents.

Boston Mills Start Up

BOSTON, Ohio, October 17, 1923.—The Boston Mills plant of the Cleveland-Akron Bag Company has just resumed operations on full time, after a several weeks' shut down.

Market Quotations

(*Continued from page 121*)

No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock	2.50	@	2.75
Writing Paper	2.25	@	2.50
No. 1 Books, heavy	2.00	@	2.25
No. 2 Books, light	1.40	@	1.50
No. 1 New Manila	2.75	@	3.00
No. 1 Old Manila	1.75	@	2.00
Container Manila	1.35	@	1.50
Old Kraft	2.25	@	2.50
Overissue News	1.50	@	1.60
Old Newspaper	1.25	@	1.50
No. 1 Mixed Paper	1.00	@	1.10
Common Paper	.80	@	.90
Straw Board, Chip	1.00	@	1.10
Binders Bd., Chip	1.00	@	1.10
Domestic Rags—New.			
Price to Mill, f. o. b. Phila.			
Shirt Cuttings—			
New White, No. 1	.12	@	.12¼
New White, No. 2	.07	@	—
Silesias, No. 1	.07¼	@	.07½
New Unbleached	.10	@	.11
Washables	.04½	@	—
Fancy	.05½	@	.05½
Cottons—according to grades—			
Blue Overall	.05½	@	.05¼
New Blue	.02¼	@	.02¼
New Black Soft	.05¼	@	.06½
New Light Seconds	.02¼	@	.02¼
Khaki Cuttings	.11	@	.04¼
Corduroy	.03½	@	.04
New Canvas	.08¼	@	.08¼
New Black Mixed	.04	@	—
Old			
White, No. 1—			
Repacked	.06	@	.06½
Miscellaneous	.04¾	@	.04¾
White, No. 2—			
Repacked	.03½	@	.04
Miscellaneous	.03	@	.03¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	2.15	@	2.35
Black Stockings	2.75	@	3.00
Roofing Stock—			
No. 1	1.35	@	1.40
No. 2	1.25	@	1.30
No. 3	.75	@	.90
No. 4	1.15	@	1.20
No. 5A	1.10	@	—
B			nominal
C			nominal

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.09½	@	.63
Ledgers	.09½	@	.55
Writings	.08¾	@	.42
Superfine	.16	@	.26
Fine	.15	@	.18
Books, S. & S. C.	.07¼	@	.12
Books, M. F.	.07¼	@	.09½
Books, coated	.09	@	.15
Label	.09	@	.13
News, sheets	4.75	@	6.00
News, rolls	4.50	@	5.75
Manilas—			
No. 1 Manila	6.00	@	7.00
No. 1 Fiber	.06½	@	.07
No. 1 Jute	9.00	@	10.50
Kraft Wrapping	.07	@	—
Common Bogus	3.50	@	3.85

Boards

(Per Ton Destination)

Chip	60.00	@	—
News, Vat Lined	60.00	@	—
Wood, Vat Lined	70.00	@	—
Filled News Board	57.00	@	60.00
Solid News Board	70.00	@	75.00
S. Manila Chip	72.50	@	77.50
Pat. Coated	87.50	@	100.00

Old Papers

Shavings—			
No. 1 Hard White	3.75	@	4.10
No. 1 Soft White	3.00	@	3.25
No. 1 Mixed	1.00	@	1.25
Ledgers & Wedding	2.25	@	—
Solid Books	2.05	@	2.10
Blanks	2.10	@	2.35
No. 2 Light Books	1.50	@	—
Folded News, overissues	1.10	@	1.20
Gunny Bagging	1.10	@	1.25
Manila Rope	5.50	@	—
Mixed paper	.75	@	.80
Old News	.95	@	1.00
Old Kraft	1.90	@	2.10
No. 1 Scrap Burlap	.80	@	1.00
No. 2 Roofing Bagging	.50	@	.60
Mixed Strings	.90	@	1.00
No. 1 Roofing Rags	1.45	@	1.50

TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark Tinted	.13½	@	.15
Ledgers (sulphite)	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.75	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Grey	5.00	@	—
White Wrap	5.75	@	—
"B" Manila	6.00	@	—
No. 1 Manila	7.25	@	—
Fiber	7.25	@	—
Kraft, M. F.	8.00	@	—
M. G.	8.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	45.00	@	—
Sulphite easy bleaching	60.00	@	65.00
Sulphite news grade	55.00	@	60.00
Sulphite, bleached	90.00	@	95.00
Sulphate	72.50	@	75.00

Old Waste Papers

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut.	3.65	@	
Soft White Book shavings	3.35	@	
White Blk. News	2.20	@	
Book and Ledger—			
Flat Magazine and Book Stock(old)	1.85	@	—
Light and Crumpled Book Stock	1.70	@	—
Ledgers and Writings	1.85	@	2.25
Solid Ledgers	2.00	@	—
Manilas—			
New Manila Cut.	2.15	@	
Printed Manilas	1.55	@	—
Kraft	2.25	@	
News and Scrap—			
Strictly Overissue	1.10	@	
Folded News	1.10	@	
No. 1 Mixed Papers	1.10	@	
Domestic Rags—			
Price to mills, f. o. b. Toronto		Per lb.	
No. 1 White shirt cuttings	.12	@	.12¼
No. 2 White shirt cuttings	.06	@	—
Fancy shirt cuttings	.05½	@	.06
No. 1 Old Whites	.04½	@	—
Third and blues	.02½	@	.02¼
		Per cwt.	
Black stockings	.03	@	—
Roofing stock:			
No. 1	—	@	—
No. 2	—	@	—
Manila rope	.03¼	@	.06
No. 2	1.35	@	—
Gunny Bagging	.01½	@	—